STIC-Biotech/ChemLib

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Huff, Sheela Monday, April 28, 2003 4:44 PM STIC-Biotech/ChemLib search request for 09/682667

Sent: To: Subject:

Please search and interference search SEQ ID No. 2, 4, 6, and 8 of the above application.

Thanks-

Sheela Huff Art Unit 1642 CM1-8B07 mailbox 8E12 305-7866



Point of Contact P. Sheppard Telephone number: (703) 308-4499

Searcher:
Phone:
Location:
Date Picked Up:,
Date Completed: 5/1/03
Searcher Prep/Review:
Clerical:
Online time:

TYPE OF SEARCH:
NA Sequences:
AA Sequences:
Structures:
Bibliographic:
Litigation:
Full text:
Patent Family:
Other:

VENDOR/COST (where applic.)
STN:
DIALOG:
Questel/Orbit:
DRLink:
Lexis/Nexis:
Sequence Sys.:
WWW/Internet:
Other (specify):

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Run on:
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April 29, 2003, 11:19:46; Search time 27.2507 Seconds (without alignments) 1610.532 Million cell updates/sec
                                                                                                                                                                                                          GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
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Sequence: Title: Perfect score: US-09-682-667-2 1094 MEVLRRSSVFAAEIMDAFDR.....TLCSFGRFLKAAFFLLLPER

Scoring table: Gapop 10.0 , BLOSUM62 Gapext 0.5

Total number of hits satisfying chosen parameters: Searched: 671580 seqs, 206047115 residues

671580

Minimum seq length:

Post-processing: Maximum DB BB seq length: 2000000000 Minimum Match 08

Maximum Match 100% Listing first 45 summaries

Database 6: 7: 8: 9: 110: 113: 114: 115: 116: SPTREMBL_21:* sp_vertebrate:*
sp_unclassified:*
sp_rvirus:*
sp_bacteriap:* sp_invertebrate:* sp_bacteria:* sp_phage: * sp_organelle:* sp_mhc:* sp_mammal:* sp_fungi:* sp_human:* sp_rodent:*
sp_virus:* sp_plant:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

sp_archeap:*

SUMMARIES

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	gall	mus mus	mus	OMO	nomo sap		rat	P97287 mus musculu	Q9zlp3 rattus norv	ovis	Q9cyw5 mus musculu	Q9jk59 rattus norv	+	088996 rattus norv		3 xen	bos t	Q8wz49 homo sapien	0	Q90zh2 xenopus lae		8	oryct	Q9nyg7 homo sapien		brach	2 felis	homo	2 sus s	/

ALIGNMENTS

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RESULT 1
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035425;
035425;
01-JAN-1998 (TrEMBLrel. 05, Created)
01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
BCL-2-related ovarian killer protein.
BCL-3-row, OR BOK OR MTD.
Inohara N., Ekhterae D., Garcia I., 'Carrio R., Merino J. Chen S., Nunez G.;
Submitted (DEC-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; AF0277954; AAB87418.1; -
EMBL; AF027707; AAC53582.1; -
MGD; MGI:1858494; Bok.
InterPro; IPR000712; BC12_BH.
InterPro; IPR0002475; BCL2_family.
                                                                                                                                                                                                                                                                         SPECIES=Rat: STRAIN-SPRAGUE-DAWLEY; TISSUE-OVARY, TESTIS, AND UTERUS; MEDLINE=98024143; PubMed=9354461; HSU S.Y., Kaipia A., McGee E., Lomeli M., Hsueh A.J.W.; "Bok is a pro-apoptotic Bcl-2 protein with restricted expression in reproductive tissues and heterodimerizes with selective anti-apoptotic Bcl-2 family members."; Proc. Natl. Acad. Sci. U.S.A. 94:12401-12406(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                           Rattus norvegicus (Rat), and
Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                                                         SPECIES-Mouse;
                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                           Submitted
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Hsu S.Y., Hsu
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                                                                                                                            Merry A.,
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RA HSU S.Y., HSueh A.J.W.;

RT "CDNA cloning of the human Bok gene.";

RL Submitted (SEP-1998) to the EMBL/GenBank/DDBJ dat

DR EMBL; AF089746; AAF09129.1; -

DR InterPro; IPR002171; BC12_BH.

NR InterPro; IPR002475; BC12_BH.

NR INTERPO02475; BC12_Family.

R Pfam; PF00452; BC1-2; 1.

R SMART; SM00337; BCL; 1.

R PROSITE; PS50065: """
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Best Local :
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Q9UL32;
Q9UL32;
01-MAY-2000 (TrEMBLrel. 13, Cr.
01-MAY-2000 (TrEMBLrel. 13, La.
01-JUN-2002 (TrEMBLrel. 21, La.
BCl-2 related ovarian killer.
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SMART; SM00337; BCL; 1;
PROSITE; PS50062; BCL2_FAMILY;
SEQUENCE 213 AA; 23456 MW;
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Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
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213 AA;
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Pred. No. 1.9
0; Mismatches
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Catarrhini;
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F8755C45CB05D626 CRC64;
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Matches 203
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BCL-2-related ovarian killer p

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01-MAY-2000
01-MAY-2000
01-JUN-2002
                  Eukaryota;
                                          Gallus gallus (Chicken)
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Submitted (NOV-2001) to the
EMBL; AF174487; AAD51719.1;
EMBL; BC006203; AAH06203.1;
EMBL; BC017214; AAH17214.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SMART; SMUUSS; CC., PAMILY; PROSITE; PS50062; BCL2_FAMILY; PROSITE; PS50062; BCL2_FAMILY; PROFIDENCE 212 AA; 23280 MW;
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InterPro; IPR002475; BCL2_family.
Pfam; PF00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
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Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
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TISSUE=MUSCLE;
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203; Conservative
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                    Metazoa;
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rr protein (Similar to BCL-2-reli
) (BCL-2-related ovarian killer
                                                                                 Last sequence update)
Last annotation update)
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Pred. No. 2.6e
3; Mismatches
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                                                               protein.
Craniata; Vertebrata; Eute; Galliformes; Phasianidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Craniata; Vertebrata; Catarrhini; Hominidae;
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2.6e-83;
nes 6;
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                    Euteleostomi;
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01-mAR-2001 (TrEMBLrel. 16, Created)
01-mAR-2001 (TrEMBLrel. 16, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
BC1-2-related ovarian killer protein.
BC1-2-related ovarian killer protein.
Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
                                                                                                                                                                             Mills E.M., Johnson A.L., Bridgham J.T., Characterization and Expression of Bok in the Submitted (JUL-2000) to the EMBL/GenBank/DDBJ dEMBL, AF290888, AAG01182.1;
                                                                                                                                                                                                                                                                                                                                                     Q9DGJ5
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"Evolutionarily conserved Bok pro

FEBS Lett. 480:311-313(2000).

EMBL; AF275944; AAF81282.1; -.

InterPro; IPR000712; BC12_BH.

InterPro; IPR002475; BCL2_family.
                                                                                                                                    Pfam; PF00452; Bcl-2; SMART; SM00337; BCL; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gallus.
NCBI_TaxID=9031;
                                                                                                                                                                                                           Mills E.M.,
                                                                                                                                                        InterPro; IPR000712; Bcl2_BH.
InterPro; IPR002475; BCL2_family.
                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                            NCBI_TaxID=9031;
                                                                                                                                                                                                                                                                 Archosauria; Aves;
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GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT
                              STDPGFRSHWLVATLCSFGRFLKAAFFLLLPER 213
                                                                                                                                                                                                                                                                                                                                                                                                                                                            WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEEVRKTLATWLRRRGGWTDVLKCVV
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                                                                                                                                                                                                                                                                                                                                                                                                         STDPSLRSHWLVAAVCSFGHFLKAIFFVLLPER 213
                                                                                                                                                                                                                                                                                                                                                                                                                                                  WGKVVSLYAVAAGLAVDCVRHAQPAMVHTIVDCLGEFVRKTLVTWLKRRGGWADITKCVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            al Similarity
167; Conserv
                                                                          165;
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                                                                                                                PS50062;
213 AA;
                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
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                                                                                                               BCL2_FAMILY;
; 23658 MW;
                                                                                                                                                                                                                                                                 Neognathae;
                                                                                 81.0%;
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                                                                       23;
                                                                      Score 886; DB 13;
Pred. No. 3.6e-70;
3; Mismatches 25;
                                                                                                                                                                                                                                                                 Craniata; Veri; Galliformes;
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    07CC06BEBD7311EC CRC64;

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                                                                                            Length 213;
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Best Local S
Matches 170
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Hsu S.Y., Kalpia A., McGee E., Lomeli M., Hsueh A.J.W.;
"Bok is a pro-apoptotic bcl-2 protein with restricted e
reproductive tissues and heterodimerizes with selective
bcl-2 family members.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      088857 PRELIMINARY; PRT; 170 AA. 088857; 01-NOV-1998 (TrEMBLrel. 08, Created) 01-NOV-1998 (TrEMBLrel. 08, Last sequence up 01-JUN-2002 (TrEMBLrel. 21, Last annotation
                                                                                                                                                                                                                                                                 PROSITE; PS50062; BCL2_FAMILY; SEQUENCE 170 AA; 18729 MW;
                                                                                                                                                                                                                                                                                            Pfam; PF00452; Bcl-2; SMART; SM00337; BCL; 1
                                                                                                                                                                                                                                                                                                                     InterPro; IPR000712; Bcl2_BH.
InterPro; IPR002475; BCL2_family.
                                                                                                                                                                                                                                                                                                                                                 Submitted (FEB-1998) to the EMBL; AF051093; AAC61928.1;
                                                                                                                                                                                                                                                                                                                                                                                                                 TISSUE=OVARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                          domain induces apoptosis
2 proteins.";
                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TISSUE=OVARY;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rattus norvegicus (Rat)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bcl-2-related ovarian killer protein
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Proc.
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138
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            STDPGFRSHWLVATLCSFGRFLKAAFFLLLPER 213
                                                                WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV 180
                                                                                                    GGRLAEVCTVLLRL------
                                                                                                                     GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT
                                                                                                                                                                       MEVLRRSSVFAAEIMDAFDRSPTDKELVÄQAKALGREYVHARLLRAGLSWSAPERASPAP
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STDPGFRSHWLVATLCSFGRFLKAAFFLLLPER
                                                   WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
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                                                                                                                                                                                                              170;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Natl. Acad.
                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                        Hsueh A.J.W.;

ng variant of the Bcl-2 member Bok with a truncated BH3 ng variant si the Bcl-2 member and with anti-apoptotic duces apoptosis without dimerization with anti-apoptotic
                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Chordata;
Rodentia;
                                                                                                                                                                                                                         77.4%; Score 846.5; 79.8%; Pred. No. 8.2
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15E54361F448CF16 CRC64;
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Mismatches
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thi; Muridae; Murinae; Rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     update)
                                                                                                                                                                                                                                       DB 11;
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RESULT 7 Q9V9C8 ID Q9V9

Q9V9C8

PRELIMINARY;

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RX. MEDLINE-20196006; PubMed=10731132;
RX MEDLINE-20196006; PubMed=10731132;
RA Adams M.D., Celniker S.E., Li P.W., Hoskins R.A., Gocayne J.D.,
RA Amanatides P.G., Scherer S.E., Li P.W., Hoskins R.A., Galale R.F.,
RA Amanatides P.G., Scherer S.E., Li P.W., Hoskins R.A., Galale R.F.,
RA Amanatides P.G., Scherer S.E., Li P.W., Hoskins R.A., Galale R.F.,
RA Amanatides P.G., Scherer S.E., Li P.W., Hoskins R.A., Gocayne J.D.,
RA Adams M.D., Cewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Pfeiffer B.D.,
RA Brandon R.C., Rogers Y.-H.C., Blazed R.G., Champe M., Pfeiffer B.D.,
RA Brandon R.C., Rogers Y.-H.C., Blazed R.G., Champe M., Pfeiffer B.D.,
RA Burtin R.J., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,
RA Abril J.F., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,
RA Abril J.F., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,
RA Ballew R. M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Borkova D., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
RA Borkova D., Benos P.V., Berman B.P., Bhandrai D., Delshakov S.,
RA Borkova D., Benos P.V., Berman B.P., Baratic P., Chandra I.,
RA Ghery J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Bortier A.,
RA Gerger J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Gordon K., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Gordon K., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Goldek A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M.,
RA Glodek A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M.,
RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Hostin D., Houston K.A., Howland T.J., Wei M.-H., Ibeywam C.,
RA Hostin D., Hollan T.J., Wei M.-H., Ibeywam C.,
RA Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
RA Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
RA Hostin M., Kalush F., Karpen G., Morris J., Woshrefi A.,
RA Hostin M., William R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Zhang H.,
Reed J.C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Drosophila pro-apoptotic Bcl-2/Bax homolog conservation of cell death mechanisms."; J. Blol. Chem. 0:0-0(2000).
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01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-OCT-2000 (TrEMBLrel. 21, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Death EXECUTIONER BCL-2 homolog protein (PROAPOPTOTIC BCL-2 homolog DEBCL) (BCL-2 family member protein) (BCL-2 ORTHOLOG DBORG-1).
DEBCL) RDBORG1 OR BOK OR BCL2.OR BG1 OR ROB-1 OR CG12397.
DESCEL OR DBORG1 OR BOK OR BCL2.OR BG1 OR CG12397.
DESCEPTION OF BOK OR BCL2.OR BG1 OR CG12397.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Debcl, a proapoptotic Bcl-2 homologue, is a Drosophila melanogaster cell death machinery J. Cell Biol. 148:703-714(2000).
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NCBI_TaxID=7227;
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Pterygota; Neoptera; Endopterygota; Diptera;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Colussi P.A., Quinn
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Huang Q.,
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(SEP-1999)
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nn L.M., Huang D.C.S.,
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RESULT
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Submitted (MAR-2000) to the EMBL/GenBank/DDBJ datah EMBL; AB032430; BAA89603.2;
EMBL; AB149798; AAF256841.1; ALT_INIT.
EMBL; AF198430; AAF26289.1;
EMBL; AF2003789; AAF25365.1; ALT_TERM.
EMBL; AF216752; AAF25355.1; ALT_TERM.
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CONFLICT
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protein.";
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PROSITE;
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Zhou L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA-binding; Zinc-finger.
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InterPro; IPR002475; BCL2_family.
InterPro; IPR000822; Znf_C2H2.
Pfam; PF00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
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P., White K.;
ve Drosophila
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PS50157; ZINC_FINGER_C2H2_2;
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Steller H.;
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Pred. No. 1.
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I -> V (IN REF. 1).
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Best Local :
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                                                                      FlyBase; FBgn0040491; Buffy.
InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; BCL2_family.
Pfam; PF00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
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01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota;
Pterygota;
                                                                                                                                                                                                   EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BC1-2-like protein BUFFY OR CG8238.
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                                                                                                                                                                                                                                              Drosophila melanogaster cell dead
J. Cell Biol. 148:703-714(2000).
                                                                                                                                                                                                                                                                                                                       Colussi P.A., Quinn L.M., Huang D.C., Richardson H., Kumar S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pterygota; Na Ephydroidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q9NGX3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (JAN-2002) to the EMBL/GenBank/DDBJ databases. EMBL; AY075219; AAL68086.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ephydroidea; Drosophilidae; Drosophila. NCBI_TaxID=7227;
                                                                                                                                                                                                                                                                                                   "Debcl,
                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=20153510; PubMed=10684252;
                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=7227;
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                                                     PROSITE; PS50062; BCL2_FAMILY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          261
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                                                                                                                                                                                                AF237864; AAF44120.1;
Q07817; 1MAZ.
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Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Neoptera; Endopterygota; Diptera; Brachycera; Musc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Neoptera;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            melanogaster (Fruit fly).
       313
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Neoptera; Endopterygota; Diptera; Brachycera;
Liposophilidae; Drosophila.
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AA; 33379 MW;
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       34909 MW;
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31.1%;
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Pred. No. 1.
                                                                                                                                                                                                                                                                       homologue, is a component of the death machinery.";
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     775A41FDDD5B678E CRC64;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Muscomorpha;
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, Park S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               31;
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      RA Addams M.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
RA Addams M.D., Celniker S.E., Holt R.A., Evans C.A., Golle R.F.,
RA George R.A., Levis S.E., Richards S., Ashburner M., Henderson S.N.,
RA Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
RA Burandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Barandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Barlew R.M., Dayle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
RA Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beelsley E.M.,
RA Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
RA Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
RA Borkova D., Botchan M.R., Butler H., Cadieu E., Center A., Chandra I.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA de Pablos B., Delcher A., Deng Z., Mays A.D., Dew I., Dietz S.M.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Glodek A., Gong F., Gorrell J.H., Gu Z., Gunn P., Harris M.,
RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Hostin D., Houston K.A., Howland T.J., Wei M.-H., Ibeyam C.,
RA Harris N.L., Harvey D., Heiman T.J., Wei M.-H., Ibeyam C.,
RA Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshreti A.,
RA Melson D.R., Nelson K.A., Nixon K., Nuzskern D.R., Pacleb J.M.,
RA Nelson D.R., Nelson K.A., Nixon K., Nuzskern D.R., Pacleb J.M.,
RA Nelson D.R., Nelson K.A., Nixon K., Nuzskern D.R., Pacleb J.M.,
RA Shuer B.C., Siden-Kiamos I., Stapleton M., Strong R., Sun E.,
RA Wang Z.-Y., Wassarman D.A., Weisnstock G.M., Weissenbach J.,
RA Williams S.M., Moddege T., Worley K.C., Wu D., Yang S., Yao Q.A.,
RA Ye J., Yeh R.-F., Zaveri J.S., Zhan M., Zhang G., Zhao Q., Zheng L.,
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Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QDIISQGRCLCGHYIKRRLRRSGLFNKKLGLQRIRSILGSTSMGIVRDVFPAVQVLGDEL
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Last sequence update)
Last annotation updat
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             247
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RESULT
Q95UB1
D1 Q9
D1 01
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Best Local
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Best Local
                                                                                                                                                                                                                                                                                               FlyBase; FBgn0029131; debcl.
InterPro; IPR000712; Bcl2_BH.
Pfam; PF00452; Bcl-2; 1.
SMART; SM00337; BCL; 1.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Interpro; IPRO00712; Bcl2_BH.
Interpro; IPRO02475; BCL2_family.
Pfam; PF00452; Bcl-2; 1.
SMART; SM00337; BcL; 1.
PROSITE; PS50062; BCL2_FAMILY; 1.
SEQUENCE 247 AA; 27466 MW; A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Tracheata;
Pterygota; Neoptera; Endopterygota; Diptera
Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; AE003825; AAF58628.1; HSSP; Q07817; 1MAZ.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAIN-BERKELEY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FlyBase; FBgn0040491; Buffy
                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=7227;
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156
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                                                                                                                ELVAQAKALGREYVHARLLRAG-LSWSAPER----ASPAPGGRLAEVCTVLLRLGDELEQ 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KELVAQAKALGREYVHARLLRAGL--SWSAPERASPAPG----GRLAEVCTVLLRLGDEL
MHPRVYTNISROLSRAPFGELEDSDMAPMLLNLVAKDLFRSSITWGKIISIFAVCGGFAI
                                                                                      DIINQGKCLCGQYIRARLRRAGVLNRKVTQRLRNILDPGSSHVVYEVFPALNSMGEELER
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                                        IRPSYYRNVARQL-HIP---LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAV 136
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                                                                                                                                                                                   Similarity
55; Conser
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1 (TrEMBLrel.
2 (TrEMBLrel.
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                                                                                                                                                                                   Conservative
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                                                                                                                                                                                                                                                                           AA;
                                                                                                                                                                                                                                                                           34649 MW;
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Drosophila.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Created)
                                                                                                                                                                                                      Score 213.5; DB 5
Pred. No. 7.7e-11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 234; DB 5
Pred. No. 9e-13;
9; Mismatches
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A2C4325AFF4C1620 CRC64;
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                                                                                                                                                                                 ed. No. 7.76 Mismatches
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a; Brachycera;
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e E., George
                                                                                                                                                                                 Indels
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L C.J.,
Wan K.,
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215
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RESULT 13
Q923R6
ID Q923R6;
AC Q923R6;
DT 01-DEC-2001
DT 01-DEC-2001
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Best Local
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SMART; SM00265; BH4; 1.
TIGRFAMS; TIGR00865; bc1-2; 1
PROSITE; PS50062; BCL2_FAMILY
PROSITE; PS01080; BH1; 1.
PROSITE; PS01259; BH3; 1.
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01-JAN-1998
01-JAN-1998
01-JUN-2002
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAIN-B6/CBA; TISSUE-THYMUS; MEDLINE-98051053; PubMed-9390687; Yang X.-F., Weber G.F., Cantor H. "A novel Bcl x isoform connected apoptosis in T cells.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Immunity 7:629-639(1997).
EMBL; U51277; AAC53458.1; -.
HSSP; P53563; 1AF3.
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Mammalia; .
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InterPro; IPR002475; BCL2_family.
InterPro; IPR004725; Bc12_reg.
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PS50063;
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PS01080; BH1; 1
PS01259; BH3; 1.
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Eutheria;
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Metazoa; Chordata; C
mutheria; Rodentia; f
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2 (TrEMBLrel.)
  (TrEMBLrel. (TrEMBLrel. (TrEMBLrel.
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                                                                                       PRELIMINARY;
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; BH4_2; 1.
A; 26122 MW;
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22.3%;
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Last annotation updat
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Pred. No. 3.3e-06;
1; Mismatches 80
                                                                                                                                                                                                                                        -TDVLKCVVSTDPGFRSH-----WLVAT
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Sciurognathi; Muridae;
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Eukaryota; Cricetulus B-cell lymphoma

longicaudatus

Chordata; Rodentia;

(Long-tailed hamster) (Chinese hamster). data; Craniata; Vertebrata; Euteleostomi; ntia; Sciurognathi; Muridae; Cricetinae;

InterPro; IPR000712; Bc InterPro; IPR003093; Bc InterPro; IPR00475; Bc InterPro; IPR00475; Bc1-2; I Pfam; PF00452; Bc1-2; I Pfam; PF00180; BH4; 1.

BC12_BH. BC12_BH4. BCL2_family.

Indels Length

55;

Gaps

5

114 95 54 56

11

Mus

188;

protein

Mammalia; Eutheria;

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             SEQUENCE FROM N.A.

MEDLINE-20350651; PubMed-10894153;

Rucker E.B. III, Dierisseau P., Wagner K.U., I
Wynshaw-Boris A., Flaws J.A., Hennighausen L.
"Bcl-x and Bax regulate mouse primordial germ
apoptosis during embryogenesis.";

Mol. Endocrinol. 14:1038-1052(2000).

EMBL; AF088904; AAC72232.1; -.
HSSP; P53563; 1AF3.
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PROSITE; PS50062; BC12_FANILY; 1.

PROSITE; PS01080; BH1; UNKNOWN_1.

PROSITE; PS01258; BH2; UNKNOWN_1.

PROSITE; PS01259; BH3; UNKNOWN_1.

PROSITE; PS01259; BH4_1; UNKNOWN_1.

PROSITE; PS01260; BH4_1; UNKNOWN_1.

SEQUENCE 236 AA; 26500 MW; BEDF05
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01-MAY-2000 (TrEMBLrel.
01-MAY-2000 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
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EMBL; AF404339; AAK922011; -

InterPro; IPR000712; Bc12_BH.

InterPro; IPR003093; Bc12_BH4.

InterPro; IPR002475; Bc12_family.

InterPro; IPR004725; Bc12_reg.
      EMBL;
HSSP;
MGD; M
                                                                                                                                Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalla; Eutherla; Rodentia;
NCBI_TaxID=10090;
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NCBI_TaxID=10030;
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PF02180; BH4; 1;
AMS; TIGR00865; k
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47; Conserv
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5; Mismatches
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                                                                                                                                            Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
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                                                                                  Wagner K.U.,
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les 78;
                                                             germ
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                                                                                    Garrett
                                                             cell survival
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Best Local 9
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                                                                                                                                                                STRAIN-B6/CBA; TISSUE-THYMUS; MEDLINE-98051053; PubMed-9390687; Yang x. F., Weber G.F., Cantor H.; "A novel Bcl-x isoform connected to apoptosis in T cells."; Immunity 7:629-639(1997).
EMBL; U51278; AAC53459.1; -. HSSP; P53563; 1AF3.
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SMART; SM00265; BH4; 1.

PROSITE; PS50062; BCL2-FAMILY; 1

PROSITE; PS01080; BH1; 1.

PROSITE; PS01259; BH3; 1.

PROSITE; PS01259; BH4_1; 1.

PROSITE; PS01250; BH4_2; 1.

PROSITE; PS501250; BH4_2; 1.

PROSITE; PS50036; BH4_2; 1.

PROSITE; PS50036; BH4_2; 1.

RON_TER 188 188

SEQUENCE 188 AA; 21126 MW; 4
                                                          InterPro; IPR004725; Bc
Pfam; PF00452; Bcl-2; 1
Pfam; PF02180; BH4; 1.
SMART; SM00337; BCL; 1.
SMART; SM00265; BH4; 1.
  TIGREAMS;
PROSITE; P
PROSITE; P
PROSITE; P
PROSITE; P
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01-JAN-1998
01-JUN-2002
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Eukaryota; Metazoa; Chordata;
Mammalla; Eutheria; Rodentia;
NCBI_TaxID=10090;
                                                                                                                  MGD; MGI:88139; Bc121.
InterPro; IPR000712; B
InterPro; IPR003093; B
InterPro; IPR002475; B
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IS; TIGR00865; bcl-2; 1.

3; PS50062; BCL2_FAMILY; 1

3; PS01080; BH1; 1.

3; PS01258; BH2; 1.

3; PS01259; BH3; 1.
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                                                                                                                  BC12_BH.
BC12_BH4.
BCL2_family.
                                                                                                         Bcl2_reg
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Pred. No. 6.
                                                                                                                                                                                                                                                                                                  Sciurognathi; Muridae; Murinae;
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Search completed: April 29, 2003, 11:25:39 Job time: 29.2507 secs
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PROSITE; PS50063; BH4_2; 1.
SEQUENCE 233 AA; 26033 MW; 3083F2D8327E072E CRC64;
                                                                      156 EFVRKTLATWLRRRGGW 172
:: | :: |||
172 TYLNDHLEPWIQENGGW 188
                                                                                                                                        55 PSWHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI 114
                                                                                                                                                                                                                                     57 ------SPAPGGR-------LAEVCTVLLRLGDELEGIRPSVYRNVARQLHI 95
                                                                                                                                                                                                                                                                                          2 SQSNRELVV------DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEAERETPSAINGN 54
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        Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
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7 sus scrofa
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15-JUN-2002 (Rel. 41, Last an Apoptosis regulator Bcl-2. Rattus norvegicus (Rat). Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Rodentia; NCBI_TaxID=10116; SQUENCE FROM N.A. TISSUE=Brain; MEDLINE=94193015; PubMed=8144, Sato T., ITIE S., Krajewski S. "Cloning and sequencing of a Gene 140:291-292(1994). [2] SEQUENCE FROM N.A. STRAIN=Sprague-Dawley; TISSUE-MEDLINE=95129487; PubMed=78184, FILLY J.I., Tilly K.I., Kenton "Expression of members of the ovary: equine chorionic gonadicell apoptosis is associated with the second cell apoptosis is associated bcl-2 and bcl-xlong messenger Endocrinology 136:232-241(199; 130) SEQUENCE OF 19-172 FROM N.A. MEDLINE=95059917; PubMed=7969; Castren E., Ohga Y., Berzaghi Lindholm D.; "bcl-2 messenger RNA is local adult rat brain."; Neuroscience 61:165-177(1994) -i- FUNCTION: Suppresses apopinolulates cell death by compermeability. Appears to caspasses. Inhibits caspass release of cytochrome c the apoptosis-activating release of cytochrome c the apoptosis-activating release of cytochrome c subcellulates permeability. Also interactive the apoptosis-activating similarity). Also interactive membrane of the nuclear elementaries of the nuclear elementaries of the nuclear elementaries permeability in reprodum expression is localized in granule and pyramidal neurons cerebellar granule neurons.	1 r C2_RAT 9950; Q628 -OCT-1996		82 82 81.5 81.5 81.5 79.5 79.5 79.5 79.7 79.7 79.7 79.7
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PROSITE; PS011080;
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EMBL; U34964; 
EMBL; S74122; 
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Pfam; PF02180; BH4; 1.
SMART; SM00337; BCL; 1
SMART; SM00265; BH4; 1
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61
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dephosphorylated by protein phosphatase 2A (PP2A) (By similarity) PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity (By similarity). SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH4) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH4) DOMAIN.
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and in the cortical plate.
DOMAIN: The BH4 domain is required for anti-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle. In the absence of growth factors, Bc12 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 European Bioinformatics Institute.
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VHRDTAARTSPLRPLVANAGPALSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                                             ----GRLAEVCTVLLRLGDELEQIRPSVYRNVAR---
                                                                                        MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDTGDEDSAPLRAAPTPGIFSFQPESNRTPA
                                                                                                                                                                                     l Similarity
52; Conser
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PS50062; BCL2_FAMILY;
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IPR004725; Bc12_reg.
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164
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BH4_2; 1.
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23.3%;
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                                                                                                                                                                                                                                                                            POTENTIAL.

CLEAVAGE (BY CASPASES) (BY SIMILARITY).

CLEAVAGE (BY CASPASES) (BY SIMILARITY).

PHOSPHORYLATION (BY PKC) (BY SIMILARITY).

A -> R (IN REF. 2).

S -> Y (IN REF. 2).

L -> Q (IN REF. 2).
                                                                                                                                                                                                         Pred.
                                                                                                                                                                                                                              Score 164.5;
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                                                                                                                                                                                                             NO.
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                                             -QLHI-P
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Mammalia; E
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16-OCT-2001
15-JUN-2002
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002718;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Bovine leukemia virus associated-leukemogenesis is correlated with suppression of programmed cell death and increased expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
STRAIN-Holstein; TISSUE-Thymus;
                                                                                                                                                                                                            <del>.</del>
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                                                                                                                       activity, causes the release of cytochrome c into the promoting further caspase activity (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.

SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                        similarity).

Similarity).

DOMAIN: The BH4 domain is required for anti-apoptotic activity and DOWAIN: The Sh4 domain is required for anti-apoptotic activity.

PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle (By similarity). In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1 (By similarity). SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum (By
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding to the apoptosis-activating factor (APAF-I) (By similarity). SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and
                                                                                                                                                                                                                                                                                      PTM: Proteolytically cleaved by caspases during apoptosis. cleaved protein, lacking the BH4 domain, has pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FUNCTION:
                                                                                                                                                                                                                                                                                                                              similarity)
                                                                                                                                                                                                                                                                                                                                            kinases. Dephosphorylated by protein phosphatase 2A (PP2A)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bcl-x(L).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Regulates cell death by controlling the mitochondrial membrane
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                including
                                                                                         SWISS-PROT entry is copyright. It is produced through a collaboration sen the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YLNRHLHTWIQDNGGWDAFVELYGPSMRPLFDFSWLSLKTLLS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      regulator
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(Rel. 40, Last sequence up
(Rel. 41, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cockerell G.L.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -GRFATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTE 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Heterodimerization with BAX requires intact BH1 and BH2
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BCL2_CRIL
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DOMAIN
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DOMAIN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIGRFAMS; TIGR00865; bcl-2; 1.
PROSITE; PS50062; Bcl2_FAMILY; 1.
PROSITE; PS01080; BH1; 1.
PROSITE; PS01258; BH2; 1.
PROSITE; PS01259; BH3; 1.
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                                MEDLINE-20431763; PubMed-10973819; Tomicic M.T., Christmann M., Kaina "Cloning and functional analysis of protein.":
                                                                                                                                                                                                                            Cricetulus longicaudatus (Long-tailed hamster) (Chinese hamster). Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SMART; SM00337;
SMART; SM00265;
  Biochem. Biophys.
                                                                                                                                                                                                            Cricetulus
                                                                                                                     TISSUE=Ovary
                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                NCBI_TaxID=10030;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCV 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----VCTVLLRLGDELEQIRPSVYRNVARQLHI-PLQSEPVVTDAFLAVAGHIFSAGI: 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KYIHYKLSQRGYEWDAGDAGAAPPGAAPAPGILSSQPGRTPAPSRTSPPPPPAAAAAGPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EYVHARLLRAGLSW-----SAPERASPAPG-----GRLAE----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GPSMRPLFDFSWL-----SLKALLSLAL 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NWGRIVAFFEFGGVMCVESVNREMSPLVDSIALWMTEYLNRHLHTWIQDNGGWDAFVELY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SPVPPVVHLTLRQAGDDfSRRYRRDFAEMSSQLHLTPFTAR----ERFATVVEELFRDGV 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PF02180
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PS01260; BH4_1;
PS50063; BH4_2;
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23.1%;
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Bcl2_BH4.
Bcl2_reg.
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  Commun. 275:899-903(2000).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BH1.
BH2.
CLEAVAGE (BY CASPASES) (BY SIMILARITY).
PHOSPHORYLATION (BY PKC) (BY SIMILARITY);
ADIDDOAF98FFF11D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POLY-PRO.
POLY-ALA.
BH3.
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Pred. No. 1.
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                                                 of cDNA encoding
                                                                           В.;
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                                                   the
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                                                   hamster Bcl-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           229;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              51;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         76
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       TRANSMEM
SITE
                                                                                                                                                                                                       PROSITE; PROSITE;
                                                                                                                                                                                                                                                    PROSITE; PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; AJ271720; HSSP; Q07817; .1
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                                                                        DOMAIN
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                                                                                                                     DOMAIN
                                                                                                                                        DOMAIN
                                                                                                                                                             Apoptosis;
                                                                                                                                                                                    PROSITE;
                                                                                                                                                                                                                                                                                                PROSITE;
    MOD_RES
                                                                                                                                                                                                       PS01259;
PS01260;
                                                                                                                                                                                                                               PS50062; BCL2_FAMILY;
PS01080; BH1; 1.
PS01258; BH2; 1.
PS01259; BH3; 1.
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вн4_2;
                                                                                                                                                                                                       BH4_1;
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BCL2_family.

Mitochondrion; Phosphorylation.

BH4. BH1.

BH2.
POTENTIAL.
CLEAVAGE (BY CASPASE-3 AND CASPASE-9).
PHOSPHORYLATION (BY PKC) (BY SIMILARITY).

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Similarity). Also interacts with APAF-1 and RAF-1 (By similarity).

C: SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum.

C: DOMAIN: The BH4 domain is required for anti-apoptotic activity and for interaction with RAF-1 (By similarity).

C: PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle (By similarity). In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases (By similarity). Dephosphorylated by protein phosphatase 2A (PP2A)

C: PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity.

C: SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

C: SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

C: SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
                                                         use by non-profit institutions as long modified and this statement is not removed entitles requires a license agreement (See or send an email to license@isb-sib.ch).
                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the El the European Bioinformatics Institute. There are no rest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Biochem. Biophys. Res. Commun. -! - FUNCTION: Suppresses apopto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         [2]
SEQUENCE FROM N.A., AND CLEAVAGE E
MEDLINE=21092839; PubMed=11181062;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tomicic M.T., Kaina B.; "Hamster Bcl-2 protein is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bcl-x(L). Heterodimerization with BAX requires intact BH1 domains, and is necessary for anti-apoptotic activity (By
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FUNCTION: Suppresses apoptosis in a variety of cell including factor-dependent lymphohematopoietic and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the apoptosis-activating factor (APAF-1) (By similarity)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Heterodimerization with BAX requires intact BH1 and
CAB92245.1; -.
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Best Local
                                  Grillot D. Ohta S., S
                                                                                                                                                                                                                                                                                                                                                                      Thompson C.B., Nunez G.;
"bCl-XL is the major bcl-x mRNA form development and its product localizes
Development 120:3033-3042(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. (ISOFORMS X(L) STRAIN=C57BL/6; TISSUE=Brain; MEDLINE=95331139; PubMed=7607090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BCLX_MOUSE STANDARD; PRT; 233 AA. 64373; Q60657; Q60658; Q6138; Q1-NOV-1997 (Rel. 35, Created) 01-NOV-1997 (Rel. 35, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation update)
                                                                                                                   "A novel Bol-x isoform connected apoptosis in T cells.";
                                                                                                                                                                                                                                                                         MEDLINE=95052604; PubMed=7963: Fang W., Rivard J.J., Mueller "Cloning and molecular charact
                                                                                                                                                                             STRAIN-C57BL/6 X CBA;
MEDLINE-98051053; Pubi
                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A. (ISOFORMS X(L);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAIN=2A4B;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Apoptosis regulator Bcl-x.
BCL2L1 OR BCL2L OR BCLX.
                Grillot D.A., Gonzalez-Garcia M
Ohta S., Seldin M.F., Nunez G.;
"Genomic organization, promoter
                                                                MEDLINE=97289584; PubMed=9144489;
                                                                                  SEQUENCE FROM
                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                              lymphocytes."
                                                                                                                                                                                                                                                                                                                              TISSUE=Pre-B
                                                                                                                                                                                                                                                                                                                                                                                                                                      Gonzalez-García M., Perez-Ballestero
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kamesaki H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   157
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         28 VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -
                                                                                                                                                                                                                                               Immunol. 153:4388-4398(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDVGDVDAAPLGAAPTPGIFSFQPESNPTPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  YLNRHLHTWIQDNGGWDAFVELYGPSVRPLFDFSWLSLKTLLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FVRKTLATWLRRRGGWTDVLKCV-VSTDPGFRSHWL-VATLCS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VHRDMAARTSPLRPIVATTGPTLSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
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                                                                                                                7:629-639(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    H., Michaud
(MAR-1995)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                              cell;
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                                                                                                                                                                                                                (ISOFORM X(BETA)).
    mouse bcl-x
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to the
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    promoter region
                                                                                                                                                                                                                                                                              characterization
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e EMBL/GenBank/DDBJ
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Pred. No. 4.2
                                                 M., Ekhterae
                                                                                                                                                                                                                                                                                             D.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BECADF1EF3337228 CRC64;
   gene.
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                                                                                                                                              cell
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                                                                                                                                                                                                                                                                             s T.W.;
                                                                                                                                                                                                                                                                                                                                          X(DELTA-TM))
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                and
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
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 EMBL; X83574; CAA58557.1; -.
EMBL; L35048; AAA51049.1; -.
EMBL; L35048; AAA51040.1; -.
EMBL; U10102; AAA82174.1; -.
EMBL; U10101; AAA82172.1; -.
EMBL; U10100; AAA82172.1; -.
EMBL; U101279; AAC53460.1; -.
EMBL; U78031; AAB96881.1; JOIN
                                                                                                                                                                                                                                                         InterPro; IPR002475; E
InterPro; IPR000712; E
InterPro; IPR003093; E
InterPro; IPR004725; E
DOMAIN
DOMAIN
                                                                                            PROSITE;
                                                                                                                           PROSITE; PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            between the Swiss Institute of Bioinformatiche European Bioinformatics Institute. These use by non-profit institutions as long a modified and this statement is not removed. entities requires a license agreement (See hor send an email to license@isb-sib.ch).
                                                                                                                                                                                          SMART; SM00337; BCL; SMART; SM00265; BH4;
                                                                                                                                                                                                                          Pfam; PF00452; Bc1-2; Pfam; PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          + + +
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-I- FUNCTION: Potent inhibitor of cell death. Inhibits activation of caspases (By similarity). Appears to regulate cell death by blocking the volatage-dependent anion channnel (VDAC) by binding
                                                                             PROSITE;
                                                                                                                                                           TIGRFAMS; TIGR00865; bcl-2; PROSITE; PS50062; BCL2_FAMI
                                                                                                                                                                                                                                                                                                                        MGD; MGI:88139;
                                                                                                                                                                                                                                                                                                                                          HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN: The BH4 domain is required for anti-apoptotic activity. The BH1 and BH2 domains are required for both heterodimerization with other Bcl2 family members and for repression of cell death. PTM: Proteolytically cleaved by caspases during apoptosis (By similarity). The cleaved protein, lacking the BH4 domain, has properly cativity (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.

SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACTIVATED.

DEVELOPMENTAL STAGE: BCL-X(BETA)IS EXPRESSED IN BOTH EMBRYONAL AND DEVELOPMENTAL TISSUES, WHEREAS BCL-X(L) IS PREDOMINANTLY FOUND IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SPLICING.
TISSUE SPECIFICITY: WIDELY EXPRESSED, WITH HIGHEST LEVELS IN THE BRAIN, THYMUS, BONE MARROW, AND KIDNEY. BCL-X(L) AND BCL-X(DELTA-TM) EXPRESSION IS ENHANCED IN B AND T LYMPHOCYTES THAT HAVE BEEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                isoform promotes apoptosis:
SUBGUNIT: BCL-X(L) forms heterodimers with BAX, BAK and similarity). Heterodimerization with BAX does not seem required for anti-apoptotic activity (By similarity).
SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBARNES AND PERITORIES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POSTNATAL TISSUES,
POSTNATAL TISSUES.
DOMAIN: The BH4 dor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ENVELOPE FOR BCL-X(L). CYTOPLASMIC FOR BCL-X(DELTA-TM).
ALTERNATIVE PRODUCTS: 4 ISOFORMS; BCX-X(L) (SHOWN HERE),
BCL-X(BETA) AND BCL-X(DELTA-TM); ARE PRODUCED BY ALTERNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cytochrome c, from the mitochondrial membrane. The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   to it and preventing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SWISS-PROT entry is copyright. It is produced through en the Swiss Institute of Bioinformatics and the EN
                                                                                                                           PS01080; BH1;
PS01258; BH2;
                                                                               PS50063;
                                                              Mitochondrion;
                                                                                                                                                                                                                                                                                                                                       1AF3
                                                                                                                                                                                                                                                                                                                         Bc121
                                                                             BH4_1;
BH4_2;
                                                                                                                                                           BCL2_FAMILY;
 24
100
148
195
                                                                                                                                                                                                                                                      Bcl2_BH.
Bcl2_BH4.
Bcl2_reg.
                                                                                                                                                                                                                                                                                                         BCL2_family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       the release of the caspase activator,
                                                                                                                                                                                                                                                                                                                                                         JOINED.
                                                              Alternative
                                                             splicing; Transmembrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           There are no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             as its content
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restrictions

EMBL

a collaboration - MBL outstation

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RESULT 5
BCLX_RAT
ID CALL
AC P539
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DT 0
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Best Local
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VARSPLIC
VARSPLIC
Endocrinology [5]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ECLX_RAT STANDARD: PRT; 233 AA. P53563; Q62678; P70614; P70613; Q62836; Q64087; Q1-QCT-1996 (Rel. 34, Created) Q1-NOV-1997 (Rel. 35, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation update) Apoptosis regulator Bclx. BCLZL1 OR BLCZL OR BCLX.
               STRAIN=Sprague-Dawley, TISSUE=Övary;
MEDLINE=95129487; pubMed=788536;
MEDLINE=95129487; pubMed=788536;
Tilly J.L., Tilly K.I., Kenton M.L., Johnson A.L.;
Tilly J.L., Tilly K.I., Kenton M.L., Johnson A.L.;
"Expression of members of the bcl-2 gene family in the immature rat ovary: equine chorionic gonadotropin-mediated inhibition of granulos cell apoptosis is associated with decreased bax and constitutive bcl-2 and bcl-xlong messenger ribonucleic acid levels.";
Endocrinology 136:232-241(1995).
                                                                                                                                                                              Shiraiwa N., Inohara N., Okada S., Y.
"An additional form of rat Bcl-x, Bc
unspliced RNA, promotes apoptosis in
J. Biol. Chem. 271:13258-13265(1996)
                                                                                                                                                                                                                                                                                                          TISSUE-Brain;
Wesselingh S.L., Dav:
Submitted (JUN-1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                   Michaelidis
                                                                                                                                                                                                                                                                                                                                                                                                                                    TISSUE-Brain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Rattus norvegicus (Rat)
                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A. (ISOFORMS X(L)
                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                 MEDLINE=96278736; PubMed=8662675;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  172
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYLNDHLEPWIQENGGW
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PSWHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----SPAPGGR----
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                  (DEC-1994)
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                                                                                                                                                                                                                                                                                                                                                                                                                 T.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
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126
189
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                                                                                                                                                                                                                                                                                                                                  David G
                                                                                                                                                (ISOFORMS X(L) AND X(S)).
                                                                                                                                                                                                                                                                                                                                                                                                                                                  (ISOFORMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  226
188
233
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22.3%;
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                                                                                                                                                                                                                                                                                                          j.L.,
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                                                                                                                                                                                                                                                                                                                 EMBL/GenBank/DDBJ
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                                                                                                                                                                                                                                                                                                                                                                                                                                                X(L)
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Pred. No. 6.
                                                                                                                                                                                                                                                                                                                                  Choi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FSRK -> VRTTPLVCPPLACVSLLCEHP BCL-X(BETA)).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MISSING (IN ISOFORM BCL-X(S)).
DTFVDLYGNNAAAESRKGQERFNRWFLTGMTVAGVVLLGSL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Craniata; Vertebrata;
Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24D2AC79887E072E CRC64;
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                                                                                                                                                                                            yuzaki M., Shoji S.-I.,
Bcl-xbeta, generated by a
in promyeloid cells.";
                                                                                                                                                                                                                                                                                  AND
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                                                                                                                                                                                                                                                                                                                                                                                                                                                AND X(S)).
                                                                                                                                                                                                                                                                                                                                  Veliuona
                                                                                                                                                                                                                                                                                X(BETA))
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                69;
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                                                                                                                                                                                                                                                                                                                                  Hardwick J.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Murinae;
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                                                                 granulosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rattus.
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 PROSITE;
PROSITE;
PROSITE;
                                                                                                                                                                                                                                            Pfam;
                                                                                                                                                                                                                                                                                                                                                             EMBL;
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                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL;
                                                                                                                                                                                              SMART; SM00337; BCL; SMART; SM00265; BH4;
                                                                                                                                                                                                                                                                                                                                  PDB;
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                                DOMAIN
                                                                                                                                                               PROSITE;
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                                                Apoptosis; Mi
3D-structure.
                                                                                PROSITE;
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                                                                                                 PROSITE;
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X82537;
U10579;
U72350;
U72349;
U72349;
U34963;
S76513;
S76513;
                                                                                                                                                                                                                               PF00452; Bc1-2;
PF02180; BH4; 1.
                                                                              PS01260;
                                                                                                               PS01259;
                                                                                                                                                                 PS50062;
                                                                                                                                                                                                                                                        IPR000712; Bc12_BH.
IPR003093; Bc12_BH4.
IPR004725; Bc12_reg.
                                                                                                                                                                                TIGR00865;
                                                                 Mitochondrion;
                                                                                                                                                                                                                                                                                                                                  07-JUL-97
                                                                                                                                                                                                                                                                                                                                                                                                              CAA57886.1; -.; CAA57887.1; -.; AAA19257.1; -.; AAB17353.1; -.
                                                                                                                                                                                                                                                                                                                                                 AAC60702.1;
                                                                                                                                                                                                                                                                                                                                                                                                  AAB17352.1; -.
                                                                                                                                                                                                                                                                                                                                                             AAC60701.1;
                                                                                                                                                                                                                                                                                                                                                                               AAA77686.1;
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BH1; 1: BH2; 1: BH3; 1: BH4_1; BH4_2;

24 100 148

BH4 BH3 BH1

Alternative splicing;

Transmembrane

65; bcl-2; 1.
BCL2_FAMILY;

BCL2_family.

ALT_INIT.

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cleaved protein, lacking the BH4 domain, activity (By similarity).

-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1

-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2

-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3

-!- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                    modified and this statement is not removed.
                                                   This SWISS-PROT entry is copyright. It is produced through a between the Swiss Institute of Bioinformatics and the EMBL the European Bioinformatics Institute. There are no restrict use by non-profit institutions as long as its content is
                                                                                                                                                                                                                                                                             -!- PTM: Proteolytically cleaved by caspases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Crystal structure of rat Bcl-xL. Imp
the Bcl-2 protein family.";
J. Biol. Chem. 272:27886-27892(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS) MEDLINE=98010630; PubMed=9346936;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Aritomi M., Kunishima
                                                                                                                                                                                                                                                                     The BH1 and BH2 domains are required for both neterousmers with other Bc12 family members and for repression of cell death.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FUNCTION: Potent inhibitor of cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        caspases (By similarity). Appears to regulate blocking the volatage-dependent anion channel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             to it and preventing the release of the caspase activator
                                                                                                                                                                                                                                                                                                          domain is required for anti-apoptotic activity.

domains are required for both heterodimerization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Z
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                                                                                                                                                                                                                                                          BH4 domain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Implications
                   (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   death.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ath. Inhibits activation of regulate cell death by channnel (VDAC) by binding
                                                                                                                                                                 (BH1)
(BH2)
(BH3)
(BH4)
                                                                                                                                                                                                                                                            has
                                      Usage
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to be
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Query Match
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TRANSMEM
VARSPLIC
VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                                                             p10417; p10418;
01-MAR-1989 (Rel. 10, Created)
01-APR-1993 (Rel. 25, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                        MEDLINE-87187643; PubMed-3032455;
Negrini M., Silini E., Kozak C., Tsujimoto Y.,
"Molecular analysis of mbcl-2: structure and ex
gene homologous to the human gene involved in f
                                                         MEDLINE=97277291;
                                                                          PHOSPHORYLATION
                                                                                                                                                                   Eguchi Y.,
                                                                                                                                                                             REVISIONS TO 221-222.
MEDLINE-92375724; PubMed=1508712;
                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. (ISOFORMS STRAIN-BALB/c; TISSUE=Liver;
                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                            Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                          Apoptosis regulator Bc1-2.
BCL2 OR BCL-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOUSE
                                                                                                          Nucleic
                                                                                                                                   Eguchi Y., Ewert D.L., Tsujimoto Y.;
"Isolation and characterization of the
in a variety of tissues including lymph
                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=10090;
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                                                                                                                        and embryo. ";
          , Deng X., Carr B., May W.S. Jr.; phosphorylation required for anti-apoptosis 1. Chem. 272:11671-11673(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   l Similarity
44; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMA
                                                                                                          Acids
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                                                                                                          Res.
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226
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                                                                                                                                                                                                                                                                                                                                                                  Chordata;
Rodentia;
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22.3%;
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                                                                          AND MUTAGENESIS
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                                                                                                                                                                                                                                                                                                                    ALPHA AND
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POTENTIAL.
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DTFVDLYGNNAAAESRKGQERFNRWFLIGMTVAGVVLLGSL
FSRK -> VRTTPLVCPPLVCLSSVEIPNCPFWSPGMVVED
                                                                                                                                                                                                                                                                                                                                                               Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
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> S (IN REF. 2).
> E (IN REF. 2).
> L (IN REF. 4).
> V (IN REF. 4).
> SS (IN REF. 4).
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> T (IN REF. 4).
> P (IN REF. 4).
                                                                                                                                 f the chicken lymphoid and
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                                                                          OF.
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                                                                          SERINE
                                                                                                                                                                                                                                          t., Croce C.M.;
d expression of
in follicular ly
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neuronal organs in
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                                                                                                                                                                                                                                          murine
homa.";
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anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle. In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases. Dephosphorylated by protein phosphatase 2A (PP2A).

1- PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity.

1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE-99069407; PubMed-9852076;
Deng X., Ito T., Carr B., Mumby M., May W.S. Jr.;
"Reversible phosphorylation of Bcl2 following interleukin bryostatin 1 is mediated by direct interaction with protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           phosphatase 2A*.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEPHOSPHORYLATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bcl-x(L). Heterodimerization with BAX requires intact domains, and is necessary for anti-apphtotic activity similarity). Also interacts with APAF-1 and RAF-1. SUBCELLULAR LOCATION: Outer mitochondrial membrane, in membrane of the nuclear envelope and the endoplasmic in the nuclear envelope and the endoplasmic interaction envelope e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  are produced by alternative splicing TISSUE SPECIFICITY: Expressed in a veromain. The BH4 domain is required for interaction with RAF-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     caspases. Inhibits caspase activity either by release of cytochrome c from the mitochondria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ALTERNATIVE PRODUCTS: 2 isoforms; alpha (shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SUBUNIT: Forms homodimers, and heterodimers with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 including factor-dependent lymphohematopoietic and neural cell: Regulates cell death by controlling the mitochondrial membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FUNCTION: Suppresses apoptosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   permeability. Appears to function in a feedback loop system with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             apoptosis-activating factor (APAF-1)
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InterPro; IPR002475; BC
InterPro; IPR000712; Bc
InterPro; IPR0007125; Bc
InterPro; IPR004725; Bc
Pfam; PF00452; Bc1-2; 1
Pfam; PF002180; BH4; 1.
SMART; SM00337; BCL; 1.
SMART; SM00265; BH4; 1. EMBL; L31532; AAA37282.1; EMBL; M16506; AAA372821.1; EMBL; M16506; AAA37281.1; PIR; A25960; TVMSA1. PIR; B25960; TVMSB1. PIR; B37332; E37332. TIGRFAMS; TIGR00865; MGD; MGI:88138; E; PS50062; BCL2_FAMILY; 1 3; PS01080; BH1; 1. 3; PS01258; BH2; 1. 4; PS01259; BH3; 1. 5; PS01259; BH4_1; 1. 6; PS01260; BH4_1; 1. 7; PS01260; BH4_2; 1. 1MA2 Bc12. Bcl2_BH. Bcl2_BH4. Bcl2_reg. BCL2_family. JOINED

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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                  091827;
01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Apoptosis regulator Ri (XRI) (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DOMAIN
DOMAIN
                                  use by non-profit institutions as long modified and this statement is not removed entities requires a license agreement (See
                                                                      This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the El the European Bioinformatics Institute. There are no restitute European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                 Xenopus laevis (African clawed frog)
Eukaryota; Metazoa; Chordata; Crania
Amphibia; Batrachia; Anura; Mesobatr
Xenopodinae; Xenopus.
                                                                                                                                                                                                                                 cell-survival genes.";
Gene 158:171-179(1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AR1_XENLA
                       or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                     Cruz-Reyes J., Tata J.R.;
"Cloning, characterization and expression of two Xenopus bcl-2-like
                                                                                                                                                                                                                                                                                     MEDLINE=95331613; PubMed=7607538;
                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
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Phosphorylation
                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=8355;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDAGDADAAPLGAAPTPGIFSFQPESNPMPA
                                                                                                                         FUNCTION: COULD BE THE HOMOLOG OF MAMMALIAN BCL-W.
SUBCELLULAR LOCATION: Membrane-bound (POTENTIAL)
DEVELOPMENTAL STAGE: DEVELOPMENTAL REGULATION ONLY OCCURS IN
BRAIN OF MID-METAMORPHOSIC TO POST-METAMORPHOSIC TADPOLES AN
ADULTS, WHERE AN INCREASE OF SEVERAL FOLD HAS BEEN OBSERVED.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YLNRHLHTWIQDNGGWDAFVELYGPSMRPLFDFSWLSLKTLLS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FVRKTLATWLRRRGGWTDVLKCV-VSTDPGFRSHWL-VATLCS 197
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FTAR----GRFATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTE
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CAA57845.1;
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                                                                                                                                                                                                                                                                                                                                                                 Anura; Mesobatrachia;
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22.48;
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CLEAVAGE (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 154.5; DB Pred. No. 6.4e-07
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DAFVELYGPSMRPLFDFSWLSLKTLLSLALVGACITLGAYL
GHK -> VGACLVE (IN ISOFORM BETA).
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вн3.
вн1.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AA85EF6B0766BE0A CRC64;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                      228
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                                http://www.isb-sib
                                                                                                                                                                                                                                                                                                                                                                Pipoidea;
                                              Usage
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; Pipidae;
                                                                         restrictions
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Best Local 9
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                                                                                                                                                                                                                                                                                                                                                  01-APR-1993 (Rel. 25, Created)
01-APR-1993 (Rel. 25, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation updat
Apoptosis regulator Bc1-2.
BC12 OR BCL-2.
                                                                                                                                                                                                                                                                                                                                                                                                                  BCL2_CH1
Q00709;
                                                                                   Cazals-Hatem D.L., Louie D.C., Tanaka S., Rec "Molecular cloning and DNA sequence analysis homologue of the Bcl-2 oncoprotein."; Biochim. Biophys. Acta 1132:109-113(1992).
                                                                                                                                         SEQUENCE FROM N.A.
TISSUB-B-cell lymphoma;
mEDLINE-92379084; PubMed-1511008;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SMART;
                                                                                                                                                                                                                                                                                                                              Gallus gallus (Chicken).
Eukaryota; Metazoa; Chor
                                                                                                                                                                                                                                                                                                                                                                                                                                          CHICK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROSITE; PS01080; BH1; 1.
PROSITE; PS01258; BH2; 1.
PROSITE; PS50062; BCL2_FAMILY;
                                                                                                                                                                                                        "Isolation and characterization of the chic
in a variety of tissues including lymphoid
adult and embryo.";
                                                                                                                                                                                                                                          MEDLINE=92375724; PubMed=1508712; Eguchi Y., Ewert D.L., Tsujimoto
                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
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                                                                                                                                                                                                                                                                                                                    Archosauria;
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                                                                                                                                                                                               Nucleic Acids
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          135
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20 RSPTDKELVAQ-----AKALGREYVHARLLRAGLSWSAPERASPAPGGRLAEVC--
                     permeability. Appears to function in a feedbaccaspases. Inhibits caspase activity either by release of cytochrome c from the mitochondria
                                                         FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoietic and neural cell Regulates cell death by controlling the mitochondrial membrane
            the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FVFGAALCAESVNKEMSPLLPRIQDWMVTYLETNLRDWIQSNGGWNGFL
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rPro; IPR000712; B
rPro; IPR003093; B
rPr00452; Bcl-2;
                                                                                                                                                                                                                                                                                                                                                                                                                             CHICK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVL 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HSAMRAAGDEFEERFRQAFSEISTQIHV----TPGTAYARFAEVAGSLFQGGVNWGRIVAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -TVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGITWGKVVSL 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RGSPDKYLTEQGWMAQSDLGSRALVEDLVRYKLCQRSL-----VPEPSG--AASCAL
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SM00265; BH4; 1.
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           apoptosis-activating factor (APAF-1)
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228
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171
                                                                                                                                                                                                                                                                                                                    Aves; Neognathae;
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186 B
227 P
25068 MW;
                                                                                                                                                                                              20:4187-4192(1992)
                                                                                                                                                                                                                                                                                                                    Chordata; Craniata; Vertebrata; Euteleostomi;
Neognathae; Galliformes; Phasianidae; Phasiani
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13.9%;
23.7%;
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Bcl2_BH4.
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Pred. No. 9.
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                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                       Tanaka S., Reed J.C.; uence analysis of cDNA
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hoid and
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BAD,
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EMBL; D11381; BAA01978.1;
EMBL; Z11961; CAA78018.1;
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                                                                                                                                                                                                                                                                                                     PROSITE;
                                                                                                                                                                                                                                                                                                                           PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR002475; BCL2_family.
InterPro; IPR000712; Bcl2_BH.
InterPro; IPR003093; Bcl2_BH4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HSSP;
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                                                                                                                                Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DOMAIN: The BH4 domain is required for anti-apoptotic for interaction with RAF-1 (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             membrane of the nuc
TISSUE SPECIFICITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  domains, and is necessary for anti-apoptotic activity similarity). Also interacts with APAF-1 and RAF-1 (By SUBCELLULAR LOCATION: Outer mitochondrial membrane, in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A37332;
S24390;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        European
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TISSUE SPECIFICITY: In adult chicken expressed, in thymus, kidney, heart, ovary and brain, with the highest levels in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SWISS-PROT entry is copyright. It is produced een the Swiss Institute of Bioinformatics and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              high level
HHRPEPPGSAAASEVPPAEGLRPAPPGVHLALRQAGDEFSRRYQRDFAQMSGQLHLTPFT 119
                                                                                                RSPTDKELVAQAKALGREYVHARLLRAGLSWSA-----PERASPAPGGRLAEVCT----
                                                                           RGYDNREIVL-----KYIHYKLSQRGYDWAAGEDRPPVPPAPAPAAAPAAVAAAGASS
                                                                                                                                                                                                                                                                                                                                                                                                 PF00452; Bcl-2;
PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                               SM00337;
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PS01260;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               non-profit
                                                                                                                                                                                                                                                                                                                                                                                                                           IPR004725;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                email to license@isb-sib.ch).
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139
                                                                                                                        Conservative
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130
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BH4_2; 1.
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139
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101
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                                                                                                                                                                                                                                                                                                                                                                      bcl-2;
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BH3.

BH1.

BH2.

POTENTIAL.

POTENTIAL.

POTENTIAL.

(IN REF. 2)

(IN REF. 2).

H -> T (IN REF. 2)

G -> V (IN REF. 2)

G -> V (IN REF. 2)
                                                                                                                   Score 152.5; I
Pred. No. 9.5e
38; Mismatches
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                                                                                                                                                                             T (IN REF. 2).
V (IN REF. 2).
                                                     -VLLRLGDELEQIRPSVYRNVARQLHI-PLQ
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No. 9.5e-07
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                                                                                                                                             DB 1;
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                                                                                                                                                                                                               P 2).
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                                                                                                                                                                                                                                                                                                       MEDLINE=97172562; PubMed=9020082;
Sattler M., Liang H., Nettesheim D.
Eberstadt M., Yoon H.S., Shuker S.B
Thompson C.B., Fesik S.W.;
"Structure of Bcl-xL-Bak peptide coregulators of apoptosis.";
Science 275:983-986(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q07817; Q92976;
01-FEB-1995 (Rel. 31, C
01-FEB-1995 (Rel. 31, I
15-JUN-2002 (Rel. 41, I
                          [7]
CLEAVAGE BY CASPASES, AND MULTULE.
MEDLINE-98118550; PubMed-9435230;
Cleam R.J., Cheng E.H.-Y., Karp C.L., Kirsch D.G.,
Cleam R.J., Cheng M.B., Griffin D.E., Earnshaw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Boise L.H.,
Turka L.A.,
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                                                                                                                                                                                                  Yoon H.S.,
Ng S.L., Fe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "bcl-x, a bcl-2-related of apoptotic cell death. Cell 74:597-608(1993).
 "Modulation
Proc. Natl.
                                                                                                                                                                                                                                    Muchmore S.W.,
                                                                                                                                                                                                                                                     MEDLINE-96256675;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Apoptosis regulator Bcl-BCL2L1 OR BCL2L OR BCLX.
Homo sapiens (Human).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BCLX_HUMAN
                                                                                                                                               Nature
                                                                                                                                                                                 "X-ray and NMR structure
                                                                                                                                                                                                                                                                                                                                                                                                                                             STRUCTURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Bax-independent inhibition Nature 379:554-556(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Korsmeyer S.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cheng E.H.-Y., Levine B.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         with Bax.";
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MUTAGENESIS OF GLY-138, AND HETERODIMERIZATION MEDLINE=95372373; PubMed=7644501;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted
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Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                         X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-96170038;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MUTAGENESIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "Multiple Bcl-2 family members demonstrate
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=93364977;
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                                                                                                                                             381:335-341(1996).
                                                                                                                                                                                                Fesik S.W.;
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N., Ohta S
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                                                                                                                                                                                   0f
                                                                                                                                                                                                                 Chang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              G.,
S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Boise L.H.,
                                                                                                                                                                                                                                     Liang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a M., ru-
G., Thompson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DOMAINS
                                                                                                                                                                                 human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of apoptosis by Bcl-XL.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL/GenBank/DDBJ databases.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BETA)
Bcl-xL through caspase
. 95:554-559(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Craniata; Vertebrata;
Catarrhini; Hominidae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        92:7834-7838(1995)
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                                                                                                                                                                                                                                     Η.,
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                                                                                                                                                                             Bcl-xL,
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В.,
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on update)
                                                                                                                                                                                                                                     Meadows
                                                                                                                                                                                                                                                                                                                                                                                 Meadows R.P., Chang B.S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  233
                                                                                                                                                                                                                   Thompson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               X(S))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Thompson C.B., Hardwick J.M.,
                                                                                                                                                                                                                                                                           AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C.B.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₿
                                                                                                                                                                                 an
                                                                                                                                                                                                                                                                                                                                             recognition
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          selective
                                                                                                                                                                                                                                                                           STRUCTURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Boise
                                                                                                                                                                                 inhibitor of
                                                                                                                                                                                                                                     R.P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ding
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W
                                                  Ueno I
W.C.,
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                                                                                                                                                                                                                                     Harlan
                                                                                                                                                                                                                                                                                                                                                                                                    Harlan J.E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Euteleostomi;
                interaction.";
                                                                                                                                                                                                                   Wong
                                                                                                                                                                                                                                                                           BY NMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            dimerizations
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                                                                                                                                                                                                                                                                                                                                                 betweer
                                                    Veliuona M.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Thompson
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PROSITE; PS50062; BCL2_FAMILY; 1
PROSITE: PS01080; BH1; 1.
PROSITE; PS01258; BH2; 1.
PROSITE; PS01259; BH3; 1.
PROSITE; PS01260; BH4_1; 1.
PROSITE; PS50063; BH4_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; 223116; CAA80662.1; -
EMBL; 223115; CAA80661.1; -
EMBL; U72318; CAB17354.1; -
PDB; 1BXL; 29-OCT-97.
PDB; 1LXL; 21-APR-97.
PDB; 1MAZ; 21-APR-97.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This SWI
                                                                                                                                                                                                                                                                                                    Pfam; PF00452; Bcl-2;
Pfam; PF02180; BH4; 1
SMART; SM00337; BCL; 1
SMART; SM00265; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         use by non-profit institutions as long modified and this statement is not removed. entitles requires a license agreement (See
                                           VARSPLIC VARSPLIC
                                                                                                                                                                                                                                                                                    SMART; SM00265; BH4; TIGRFAMS; TIGR00865;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           or send an email to license@isb-sib.ch).
   MUTAGEN
                                                                          SITE
                                                                                                                                                 DOMAIN
                                                                                                                                                               Apoptosis; Mi
3D-structure
                                                                                                                                                                                                                                                                                                                                                             InterPro;
                                                                                                                                                                                                                                                                                                                                                                             InterPro;
                                                                                                                                                                                                                                                                                                                                                                                           InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                            InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                          Genew;
                                                                                         TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     s SWISS-PROT entry is copyright. It is produced through ween the Swiss Institute of Bioinformatics and the EM European Bioinformatics Institute. There are no restruct by non-profit institutions as long as its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACTIVITY.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4)
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ENVELOPE (BY SIMILARITY).

ALTERNATIVE PRODUCTS: 3 ISOFORMS; BCL-X(L) (SHOWN HERE), BCL-X(S) AND BCL-X(BETA); ARE PRODUCED BY ALTERNATIVE SPLICING.

AND BCL-X(BETA); ARE PRODUCED BY ALTERNATIVE SPLICING.

TISSUE SPECIFICITY: BCL-X(S) IS EXPRESSED AT HIGH LEVELS IN CELLS.

THAT UNDERGO A HIGH RATE OF TURNOVER, SUCH AS DEVELOPING LYMPHOCYTES. IN CONTRAST, BCL-X(L) IS FOUND IN TISSUES CONTAINING LONG-LIVED POSTMITOTIC CELLS, SUCH AS ADULT BRAIN.

DOMAIN: The BH4 domain is required for anti-apoptotic activity. The BH1 and BH2 domains are required for both heterodimerization with other Bcl2 family members and for repression of cell death. PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              caspases (By similarity). Appears to regulate oblocking the volatage-dependent anion channel to it and preventing the release of the caspase cytochrome c, from the mitochondrial membrane. Isoform promotes apoptosis.

SUBUNIT: Bcl-x(L) forms heterodimers with BAX, Heterodimerization with BAX does not seem to be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                apoptotic activity.
SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FUNCTION:
                                                                                                                                                                                                                                                                                                                                                                                                                          600039;
                                                                                                                                                                                                                                                                                                                                                                                                                                     HGNC:992; BCL2L1
                                                                                                                                                                                is;
                                                                                                                                                                                                                                                                                                                                                                            IPR003093;
                                                                                                                                                                                                                                                                                                                                                                                      IPR002475; BCL2_family. IPR000712; Bcl2_BH.
                                                                                                                                                                                                                                                                                                                                                             IPR004725;
                                                                                                                                                                              Mitochondrion;
                                           86
129
180
210
61
126
189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (By similarity). Appears to regulate cell death by the volatage-dependent anion channnel (VDAC) by binding preventing the release of the caspase activator.
 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Potent inhibitor of cell death. Inhibits activation
                                           24
100
148
195
226
61
188
233
6
                                                                                                                                                                                                                                                                                                                                                            Bcl2_BH4.
Bcl2_reg.
                                                                                                                                                                                                                                                                                    bc1-2;
                                                                                                                                                                              Alternative
         BH4.
BH3.
BH1.
BH2.
BH2.
POTENTIAL.
CLEAVAGE BY CASPASE-1.
CLEAVAGE BY CASPASE-1.
DTFVELYGNNAAAESRKGGEFNRWFELTGMTVAGVVLLGSL
FSRK -> VERYKPLVCPFSLASGQRSFTALLIYLFLLCWVI
VGDUDS (IN ISOFORM BCL-X(BETA)).
 NO
                                                                                                                                                                             splicing; Transmembrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (See http://www
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Usage
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DOMAIN.

DOMAIN.
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e required for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The Bcl-x(S)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        bу
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    restrictions
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a collaboration
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          commercial
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                            BCLX_PIG STANDARD
077737;
15-JUL-1999 (Rel. 38, C
15-JUL-1999 (Rel. 38, L
15-JUN-2002 (Rel. 41, L
                                                                         short-term hibernating myocardium.";

J. Mol. Cell. Cardiol. 31:147-158(1994).

-IF FUNCTION: Potent inhibitor of cell death. Inhibits activation of caspases (By similarity). Appears to regulate cell death by blocking the volatage-dependent anion channel (VDAC) by binding to it and preventing the release of the caspase activator, cytochrome c, from the mitochondrial membrane.

-IF SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and Bcl-2 (By similarity). Heterodimerization with BAX does not seem to be required for anti-apportotic activity (By similarity).

-IF SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR ENVELOPE (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MUTAGEN
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MUTAGEN
MUTAGEN
                                                                                                                                                                                                                                            Bartling B., Hoffmann J., Holtz J., "Quantification of cardioprotective
                                                                                                                                                                                                                                                                                                                         Eukaryota; Metázoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
                                                                                                                                                                                                                                                                                                                                                                   Apoptosis regulator Bcl-x. BCL2L1 OR BLC2L OR BCLX.
                                                                                                                                                                                                                                                                                                                                                        Sus scrofa (Pig).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
MEDLINE=99171363; PubMed=10072723;
                                                                                                                                                                                                                                                                                                               NCBI_TaxID=9823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MUTAGEN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21 SPTDKELVAQAKALGREYVHARLLRAGLSWS------APERA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N
            with other Bcl2 family members and for repression of cell PTM: Proteolytically cleaved by caspases during apoptosis similarity). The cleaved protein, lacking the BH4 domain,
                                                    DOMAIN: The BH4 domain is required for The BH1 and BH2 domains are required for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYLNDHLEPWIQENGGW 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SQSNRELVV-----DFLSYKLSQKGYSWSQFSDVEENRTEAPEGTESEMETPSAINGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EFVRKTLATWLRRRGGW 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PLQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PSWHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIAAWMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity 22.3
44; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           233
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70
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148
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176
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135
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 activity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         189
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26049
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148
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137
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13.8%;
                                                                                                                                                                                                                                                                                                                                                                                               Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                          Created)
                                                                                                                                                                                                                                                                                                                                                                                                          Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 150.5;
Pred. No. 1.4e
29; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FRD->VRA: NO HETERC VNW->AIL: LOSS OF A ACTIVITY. GRI->ELN: LOSS OF A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WD->GA: REDUCES ANTI-APOPTOTIC ACTIVITY
BY ABOUT HALF:
D->A: NO EFECT ON CASPASE-1 CLEAVAGE.
G -> A (IN REF. 1; CAA80661).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACTIVITY.

6->A: NO HETERODIMERIZATION WITH BAX.
G->E: NO HETERODIMERIZATION WITH BAX.
D->A: NO EFECT ON CASPASE-1 CLEAVAGE.
D->A: NO EFECT ON CASPASE-1 CLEAVAGE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         E09D3CDD851AE9BE CRC64;
                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                           Schulz R., Heusch G., Darmer D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1.4e-06;
ches 69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NO HETERODIMERIZATION WITH LOSS OF ANTI-APOPTOTIC
                                                     for
                                                                                                                                                                                                                                              expression in
                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                anti-apoptotic activity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 1;
                                                     both
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                     heterodimerization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                            porcine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      55;
                                      death.
                          (Ву
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
            pro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   155
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SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2
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IPR000712; Bcl2_BH.
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Yamamoto K., Ichijo H., Korsmeyer S.J.;
"BCL-2 is phosphorylated and inactivated l
protein kinase pathway normally activated
Mol. Cell. Biol. 19:8469-8478(1999).
-!- FUNCTION: Suppresses apoptosis in a va
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE-94239528; PubMed-8183370;
Yin X.-M., Oltvai Z.W., Korsmeyer S.J.;
"BHI and BH2 domains of Bcl-2 are required for
apoptosis and heterodimerization with Bax.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
MEDLINE-88196071; P.
Seto M., Jaeger U.,
                                                                                                                                                                     Ruvolo P.P., Deng X., May W.S "Phosphorylation of Bcl2 and JLeukemia 15:515-522(2001).
                                                                                                                                                                                                                                                                                                         Science
                                                                                                                                                                                                                                                                                                                        MEDLINE=98057466; PubMed
Cheng E.H.-Y., Kirsch D
Ueno K., Hardwick J.M.;
"Conversion of Bcl-2 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hockenbery D., Nunez G., Milliman "Bcl-2 is an inner mitochondrial m programmed cell death.";
Nature 348:334-336(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tanaka S., Louie D.C., Kant J.A., Reed J. Frequent incidence of somatic mutations oncogenes of non-Hodykin's lymphomas."; Blood 79:229-237(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Alternative promoters and exons, somat of the Bcl-2-Ig fusion gene in lymphoma
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"Analysis of the structure,
bcl-2, the gene involved in
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MEDLINE=92375724; PubMed=1508712;
Eguchi Y., Ewert D.L., Tsujimoto Y.;
"Isolation and characterization of the chic
in a variety of tissues including lymphoid
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                                                                                                         MEDLINE=20036804;
                                                                                                                               PHOSPHORYLATION
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                                                                                                                                                                                                                                                                                                       278:1966-1988(1997).
                                                                                                                                                                                                                                                              PHOSPHORYLATION
                                                                                                                                                                                                                                                                                                                                                                                                                CASPASES,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Res. 20:4187-4192(1992).
                                                                                                                          ВУ
                                                                                                                                                                                                                                                                                                                                                                                         SES, AND MUTAGENESIS PubMed=9395403;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PubMed=2250705;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PubMed=2834197;
., Hockett R.D.,
                                                                                                      Y ASK1/JNK1.
PubMed=10567572;
                                                                                                                                                                                                                                        PubMed=11368354;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (ISOFORM ALPHA).
                                                                                                                                                                                                                                                                                                                                                                   D.G.,
                                                                                                                                                                                                                                                                                                                             a Bax-like death
                                                                                                                                                                                                                                                                                                                                                                     Clem R.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ALPHA)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (ISOFORM
                                                                                                                                                                                              regulation
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ALPHA),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Schreiber R.
rane protein
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                                          ASK1/Jun (2)/M.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     inhibition
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neuronal org
  of cell
                                                                                                                                                                                                                                                                                                                                                                       Kastan
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  deregulation
                                                                                                                                                                                                                                                                                                                                                                     м. в.,
systems
                                                                N-terminal
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Jans in
                                                                                                                                                                                                                                                                                                                                                                       Bedi A.,
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SMART; SM00337; BCL;
SMART; SM00265; BH4;
TIGRFAMS; TIGR00865; I
PROSITE; PS50062; BCL
                                                                                                      InterPro;
Pfam; PFOC
                                                                                                                                   InterPro;
InterPro;
InterPro;
                                                                                                                                                                                                                                               PIR;
PIR;
PIR;
                                                                                                                                                                                                                                                                                                                          EMBL;
                                                                                                                                                                                                                                                                                                                                                        EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                    modified and this statement is not ren
entities requires a license agreement
or send an email to license@isb-sib.ch
                                                                                                                                                                                                                               PIR; A24428; TVHUBC.
PIR; C37332; C37332.
PIR; D37332; D37332.
                                                                                                                                                                                                                                                                                            PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This
                                                                                                                                                                                   MIM; 151430; -
                                                                                                                                                                                                   Genew;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4)
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/W phase of the cell cycle. In the absence of growth factors, Bc12 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases. Dephosphorylated by protein phosphatase 2A (PP2A) (By similarity). PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                are produced by alternative splicing.
TISSUE SPECIFICITY: Expressed in a variety of t
DOMAIN: The BH4 domain is required for anti-apol
for interaction with RAF-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 European Bioinformatics Institute.
by non-profit institutions as 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  promoting further caspase activity.
DISEASE: Involved in follicular lymphoma (FL)
II chronic lymphatic leukemia) by a chromosoma
t(14;18)(q32;q21) which involves Bcl2 and immu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1. SUBCELLULAR LOCATION: Outer mitochondrial membrane, intra-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DATABASE: NAME-Atlas Genet. Cytogenet. Oncol. Haematol.;
WWW-"http://www.infobiogen.fr/services/chromcancer/Genes/BCL2ID49.html"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUBUNIT: Forms homodimers, and heterodimers with BAX, Bcl-x(L). Heterodimerization with BAX requires intact
                                                                                                                                                                                                                                                                                                                        ; M13994; AAA51813.1; A
; M13995; AAA51814.1; A
; M14745; AAA35591.1;
; X06487; CAA29778.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       regions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PTM: Phosphorylation/dephosphorylation on Ser-70 regulates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the apoptosis-activating factor (APAF-1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             release of cytochrome c from the mitochondria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Regulates cell death by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SWISS-PROT entry is copyright. It is produced through a collaboration een the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                            ; S72602; AAD14
A29409; TVHUA1
                                                                                         PF02180; BH4; 1.
                                                                                                                                                                                                                Q07817;
                                                                                                                                                                                                HGNC:990; BCL2.
                        M00265; BH4; 1.; TIGR00865; bcl-2; 1.
PS50062; BCL2_FAMILY; 1.
                                                                                                                    IPR003093;
IPR004725;
                                                                                                                                                 IPR002475; 1
IPR000712;
                                                                                                                                                                                                                                                                                                                                                                                                       email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                              TVHUB1
                                                                                                                                                                                                                1MAZ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           factor-dependent lymphohematopoietic and neural cells.
                                                                                                       Bcl-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the nuclear envelope and the endoplasmic PRODUCTS: 2 isoforms; alpha (shown here)
                                                                                                                  Bcl2_BH.
Bcl2_BH4.
Bcl2_reg.
                                                                                                                                                                     BCL2_family.
                                                                                                      -
                                                                                                                                                                                                                                                                                                                                                       ALT_SEQ.
                                                                                                                                                                                                                                                                                                           ALT_SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      is required for anti-apoptotic activity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          controlling the mitochondrial membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                   as long removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     y a chromosomal translocation 
Bcl2 and immunoglobulin gene
                                                                                                                                                                                                                                                                                                                                                                                                                    (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     variety of tissues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  There
                                                                                                                                                                                                                                                                                                                                                                                                                                                 as its content
                                                                                                                                                                                                                                                                                                                                                                                                                                   Usage
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    immunoglobulin
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DOMAIN.
DOMAIN.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          preventing the and/or by binding to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     here) and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  restrictions
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RESULT 12
BAXB_HUMAN
ID BAXB_H
AC Q07814
AC Q07814
AC J07814
AC ACT SENTING STREET STR
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Best Local :
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                                                                                                                                                                                                                                                        BAXB_HUMAN
Q07814;
Q1-FEB-1995
Q1-FEB-1995
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CONFLICT
CONFLICT
CONFLICT
CONFLICT
SEQUENCE
                                                                                                                              Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MUTAGEN
MUTAGEN
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VARSPLIC
                        SEQUENCE FROM N.A
TISSUE=B-cell;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VARIANT
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                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                                     Apoptosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DOMAIN
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     MEDLINE=93364978;
                                                                                                 NCBI_TaxID=9606;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRR
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGWDAFVELYGPSMRPLFDFSWLSLKTLLS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity 21.
                                                                                                                                                                                                                                995 (Rel. 31, Created)
995 (Rel. 31, Last segu
302 (Rel. 41, Last anno
s regulator BAX, cytopl
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                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BH4_1;
BH4_2;
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117
129
26266
     PubMed=8358790
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64
145
                                                                                                                                 Chordata;
Primates;
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Last annotal.
Max, cytoplasmic j
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21.9%;
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POTENTIAL.

POTENTIAL.

CLEAVAGE (BY CASPASE-3).

CLEAVAGE (BY CASPASE-3).

PHOSPHORYLATION (BY PKC) (BY SIMILARITY).

DAFVELYGESWRPLFEDESWLSLKTLLSLALVGACITLGAYL

DAFVELYGESWRPLFEDESWLSLKTLLSLALVGACITLGAYL

THE STATE OF THE STA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 W->A: NO HETERODIMERIZATION WITH BAX AND LOSS OF ANTI-APOPTOTIC ACTIVITY.

I -> F (IN REF. 4).

P -> T (IN REF. 3).
S -> R (IN REF. 3).
R -> C (IN REF. 4).

R -> C (IN REF. 4).
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D->A:
G->A:
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                                                                                                                              Craniata; V
Catarrhini;
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NO EFFECT ON CLEAVAGE BY CASPASE-3
NO HETERODIMERIZATION WITH BAX AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        No. 1
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                                                                                                                                                                                                                                     n update)
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                                                                                                                                                         Vertebrata;
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nes 75;
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                                                                                                                                    Hominidae;
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BAXA_HUMAN
ID BAXA_HUMAN
AC Q07812;
RT 01-FEB-1995
DT 01-FEB-1995
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Best Local
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01-FEB-1995
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"Bcl-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF00452; Bcl-2; SMART; SM00337; BCL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PIR; B47538; B47538.
HSSP; Q07817; 1MAZ.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the El the European Bioinformatics Institute. There are no resti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Apoptosis;
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SMART; SM00337; BCL; 1.
PROSITE; PS01080; BH1; 1.
PROSITE; PS01258; BH2; 1.
PROSITE; PS01259; BH3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MIM; 600040;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HSSP; Q07817;
Genew; HGNC:9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; L22474; AAA03620.1;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR002475; BCL2_family.
InterPro; IPR000712; Bcl2_BH.
                                                                                                                                                                                              124 ALCTKVPELIRTIMGWTLDFLRERLLGWIQDQGGWVRLLK
                                                                                                                                                                                                                                                                                           71
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                                                                                                                                                                                                                                                                                                                                                                                         13
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TISSUE SPECIFICITY: EXPRESSED IN A WIDE VARIETY OF TISSUES.

DOMAIN: INTACT BH3 DOMAIN IS REQUIRED BY BIK, BID, BAK, BAD AND

BAX FOR THEIR PRO-APOPTOTIC ACTIVITY AND FOR THEIR INTERACTION

WITH ANTI-APOPTOTIC MEMBERS OF THE BCL-2 FAMILY:

APOPTOTIC MEMBERS OF THE BCL-2 FAMILY:

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 E1B 19K PROTEIN, BCL-X(L), MCL-1 AN SUBECLLULAR LOCATION: Cytoplasmic. ALTERNATIVE PRODUCTS: THE MEMBRANE CYTOPLASMIC ISOFORMS, BETA, GAMMA & ALTERNATIVE SPLICING.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FUNCTION: ACCELERATES PROGRAMMED CELL DEATH ANTAGONIZING THE APOPTOSIS REPRESSOR BCL-2 C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HOMOLOG E1B 19K PROTEIN.
SUBUNIT: FORMS HOMODIMERS AND HETERODIMERS
                                                                                                                                                                                                                                                                                                                                                                                                                            PTDKELVAQAKALGRE-YVHARLLRAGLSWSAPERA-SPAP-GGRLAEVCTVLLRLGDEL 78
                                                                                                                                                                                                                                            CVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLK
                                                                                                                                                                                                                                                                                                                                        EQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAG-ITWGKVVSLYSVAAGLAVD 137
                                                                                                                                                                                                                                                                                                                                                                                       PTSSEQIMKTGALLLQGFIQDRAGRMG--GEAPELALDPVPQDASTKKLSECLKRIGDEL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 Similarity
46; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HGNC:959; BAX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                non-profit institutions as long as its content is in no way d and this statement is not removed. Usage by and for commercial s requires a license agreement (See http://www.isb-sib.ch/announce/an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PS01259; BH3; 1.
PS50062; BCL2_FAMILY; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98
150
218 /
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alternative splicing.
73 BH3.
    (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
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                                                                                                                                                                                                                                                                                           NMELQRMIAAVDTDSPREVFFRVAADMFSDGNFNWGRVVALFYFASKLVLK
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                                                                          STANDARD;
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31,
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165
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Created)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 149.5; DB 1;
Pred. No. 1.6e-06;
9; Mismatches 72;
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вн2.
                                                                          PRT;
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MBL outstation -
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InterPro; IPR002475; I
InterPro; IPR000712; E
Pfam; PF00452; Bcl-2;
SMART; SM00337; BCL; ]
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Sloetjes A.W., de Witte T., Waksman G., I
"Hematopoietic malignancies demonstrate
                                                                                                           MIM; 600040;
                                                                                                                                                                             EMBL; L22473; AAA03619.1; PIR; A47538; A47538.
                                                                                                                                                                                                                                                                      use by non-profit institutions as long modified and this statement is not removed. entities requires a license agreement (See
                                                                                                                                                                                                                                                                                                                                          the
                                                                                                                                                                                                                                                                                                                                                                                                                                <del>--</del> <del>--</del> <del>--</del>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VARIANT PLASMACYTOMA GLU-11, VARIANT
LEUKEMIA ARG-67, AND VARIANT BURKITT
MEDLINE=98200607; PubMed=9531611;
Meijerink J.P.P., Mensink E.J.B.M., W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Chittenden
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             accelerates programmed Cell 74:609-619(1993).
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Oltvai z.N., Milliman (
"Bcl-2 heterodimerizes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                   Genew;
                                                                                                                                                        HSSP; Q07817;
                                                                                                                                                                                                                                                   or send
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBO J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "A conserved domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=96091131;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MUTAGENESIS,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TISSUE-B-cell;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Apoptosis regulator BAX, membrane isoform alpha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15-JUN-2002 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                           DISEASE: Defects in BAX are found in some cell lines from hematopoletic malignancies as T-cell acute lymphoblastic burkitt lymphoma, and plasmacytoma.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TISSUE SPECIFICITY: EXPRESSED IN A WIDE VARIETY DOMAIN: INTACT BH3 DOMAIN IS REQUIRED BY BIK, BI BAX FOR THEIR PRO-APOPTOTIC ACTIVITY AND FOR THE WITH ANTI-APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.

APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ANTAGONIZING THE APOPTOSIS REPRESSOR BCL-2 OR ITS ADENOVIRU HOMOLOG E1B 19K PROTEIN. INDUCES THE RELEASE OF CYTOCHROME ACTIVATION OF CASPASE-3, AND THEREBY APOPTOSIS. SUBUNIT: FORMS HOMOLIMERS AND HETERODIMERS TOGETHER WITH BC E1B 19K PROTEIN, BCL-X(L), MCL-1 AND A1.
                                                                                                                                                                                                                                                                                                                                       s SWISS-PROT entry is copyright. It is produced through ween the Swiss Institute of Bioinformatics and the EN European Bioinformatics Institute. There are no resti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUBCELLULAR LOCATION: Membrane-bound. ALTERNATIVE PRODUCTS: THE MEMBRANE ISOFORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CYTOPLASMIC ISOFORMS, BETA, ALTERNATIVE SPLICING.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           od 91:2991-2997(1998).
FUNCTION: ACCELERATES PROGRAMMED CELL DEATH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                enden T., Flemington C., Houghton A.B., ovan B., Chinnadurai G., Lutz R.J.; nserved domain in Bak, distinct from BH1 and protein binding functions.";
J. 14:5589-5596(1995).
                                                                                                                                   HGNC: 959;
                                                                                                                                                                                                                                                 s requires a license agreement (See an email to license@isb-sib.ch).
PS50062;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          s (Human).
Metazoa; Chordata; C
Metazoa; Primates; C
                                                                                                                1MAZ.
T. BAX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AND FUNCTION OF BH3
1131; PubMed=8521816;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4978; PubMed-8358790; Milliman C.L., Korsm
BCL2_FAMILY;
                                                               Bc12_BH
                                                                                      BCL2_family
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  in vivo with cell death.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .J.B.M., Wang K., Sedlak T.W., Waksman G., Korsmeyer S.J.; demonstrate loss-of-function
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Korsmeyer
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OR ITS ADENOVIRUS
OF THE PROPERTY OF T
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Apoptosis;
Disease mut
                                       STRAIN-Hubbard White Mountain; TISSUE-Testis; MEDLINE-97264485; PubMed-9110311; Vilagrasa X., Mezquita C., Mezquita J.; Vilagrasa X., Mezquita C., Mezquita J.; "Differential expression of bol-2 and bol-x during chicken spermatogenesis."; Mezquita C., Mezquita J.; and bol-x during chicken spermatogenesis."; Mezquita Reputation of ApoptoTIC CELL DEATH. 1: FUNCTION: DOMINANT REGULATOR OF APOPTOTIC CELL DEATH. 1: FORM DISPLAYS CELL DEATH REPRESSOR ACTIVITY, WHEREAS THE TOTAL TOTAL APOPTOSIS (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q07816; Q98908;
01-FEB-1995 (Rel. 31, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Apoptosis regulator Bcl-X.
Bcl2L1 OR BCLX OR BCL-X.
                                                                                                                                                                                                                                                                                                                                      Boise L.H., Gonzalez-Garcia M., Postema C.E., I
Turka L.A., Mao X., Nunez G., Thompson C.B.;
"bcl-x, a bcl-2-related gene that functions as
of apoptotic cell death.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A. (SHORT FORM). MEDLINE=93364977; PubMed=8358789;
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                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A. (LONG FORM).
                                                                                                                                                                                                                                                                                                                   Cell 74:597-608(1993).
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    ENVELOPE (BY SIMILARITY)
ALTERNATIVE PRODUCTS: 2
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28.3%;
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    ISOFORMS;
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Pred. No. 4e-06;
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G -> E (IN PLASMACYTOMA).

/FTId=VAR_013575.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Craniata; Vertebrata; Euteleostomi;
; Galliformes; Phasianidae; Phasiani
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /FTId=VAR_013576.
6C0CDB0A7DEE4994 CRC64;
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                                                                                                                THE LONG
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Best Local
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SMART; SM00265; BH4; 1.
TIGREAMS; TIGR00865; bcl-2; 1.
PROSITE; PS01062; BCL2_FAMILY; 1
PROSITE; PS01080; BH1; 1.
PROSITE; PS01258; BH2; 1.
PROSITE; PS01259; BH3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on it use by non-profit institutions as long as its content is in no was modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR004725; I
Pfam; PF00452; Bcl-2;
Pfam; PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APOPTOTIC ACTIVITY (BY SIMILARITY).

-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1)
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2)
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3)
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4)
-!- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                            PROSITE; PS01260; BH4_1; 1. PROSITE; PS50063; BH4_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PIR; 'A47537; A47537.
HSSP; P53563; 1AF3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; Z23110; CAA80657.1; EMBL; U26645; AAB07677.1;
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172
                        160
                                                  112
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                                                                                                                              60
                                                                                                                                                                              21 SPTDKELVAQAKALGREYVHARLLRAGLSWSAPE---
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN: BH4 DOMAIN SEEMS TO BE INVOLVE FUNCTION. INTACT BH1 AND BH2 DOMAINS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SHORT FORM; ARE PRODUCED BY ALTERNATIVE SPLICING. TISSUE SPECIFICITY: HIGHEST EXPRESSION IN ORGANS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEVELOPMENT.
DHLDPWIQENGGW
                       KTLATWLRRGGW 172
                                                               EPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVR
                                                                                                  PPAGHVVNGATVHRSSLEVHEIVRASDVRQALRDAGDEFELRYRRAFSDLTSQLHI---T
                                                                                                                                                      SSSNRELVI-----DFVSYKLSQRGHCWSELEEEDENRTDTAAEAEMDSVLNGSPSWH
                                                PGTAYQSFEQVVNELFHDGVNWGRIVAFFSFGGALCVESVDKEMRVLVGRIVSWMTTYLT
                                                                                                                           -PGG------RLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQS
                                                                                                                                                                                                         43;
                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IPR002475;
IPR000712;
IPR003093;
                                                                                                                                                                                                                                                                                                                                                                 Transmembrane;
                                                                                                                                                                                                                                                            229
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125
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176
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96
144
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Bcl2_BH.
Bcl2_BH4.
Bcl2_reg.
                                                                                                                                                                                                                                                            25733 MW;
                                                                                                                                                                                                                    12.9%;
22.3%;
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                                                                                                                                                                                                                                                                                                                                                                 Alternative
                                                                                                                                                                                                    Score 141.5; DB 1,
Pred. No. 9.2e-06;
                                                                                                                                                                                                        30;
                                                                                                                                                                                                                                                                      ERFVDLYGNNAAAELRKGQETFNKWLLTGATVAGVLLLGSL
LSRK -> VRTALP (IN SHORT ISOFORM).
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                                                                                                                                                                                                                                                            A97D3A4D04C0E9DA CRC64;
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                                                                                                                                                                                                                                                                                                                                                                splicing
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DOMAIN.
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RESULT 15 AR11_XENLA ID AR11_XENLA

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Search completed: April 29, 2003, 11:23:54 Job time: 9.50783 secs
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   - PUNCTION: CONFERS STRONG PROTECTION AGAINST CELL DEATH.
- SUBCELLULAR LOCATION: Membrane-bound (Potential).
- DEVELOPMENTAL STAGE: DEVELOPMENTAL REGULATION ONLY OCCURS IN THE BRAIN OF MID-METAMORPHOSIC TO POST-METAMORPHOSIC TADPOLES AND ADULTS, WHERE AN INCREASE OF SEVERAL FOLD HAS BEEN OBSERVED.
- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cruz-Reyes J., Tata J.R.;
"Cloning, characterization and expression of two Xenopus bc1-2-like cell-survival genes.";
Gene 158:171-179(1995).
-i- FUNCTION: COMPERS STRONG PROTECTION AGAINST CELL DEATH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Apoptosis regulator R11 (XR11).
Xenopus laevis (African clawed frog).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
Xenopodinae; Xenopus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q91828;
01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SMART; SM00337; BCL; 1.
SMART; SM00265; BH4; 1.
TIGREAMS; TIGRO0865; bcl-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROSITE; PS01080;
PROSITE; PS01258;
PROSITE; PS50062;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; X82461; CAA57844.1; -. HSSP; Q07817; 1MAZ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF00452; Bcl-2; 1. Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         entities requires a license agreement (See http://www.isb-sib.ch/announce/
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                                                                                                                                                                             126 SLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Apoptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR002475; BCL2_family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=8355;
                                                                                                                     114 AFFSFGRALCVESANKEMTDLLPRIVQWMVNYLEHTLQPWMQENGGW 160
                                                                                                                                                                                                                                             57
                                                                                                                                                                                                                                                                                                  66 EVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGITWGKVV 125
                                                                                                                                                                                                                                                                                                                                                                                            Local
                                                                                                                                                                                                                                       EVLQALLEATEEFELRYQRAFSDLTSQLHI---TQDTAQQSFQQVMGELFRDGTNWGRIV 113
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28; Conserv
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IPR004725; Bcl2_reg.
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                                                                                                                                                                                                                                                                                                                                                                Conservative
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вн2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BCL2_FAMILY; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               198 P
23379 MW;
                                                                                                                                                                                                                                                                                                                                                                                     12.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bc12_BH.
                                                                                                                                                                                                                                                                                                                                                                22;
                                                                                                                                                                                                                                                                                                                                                          Score 139.5; DB 1;
Pred. No. 1.2e-05;
2; Mismatches 54;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POTENTIAL.
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Maximum Match 100%
Listing first 45 summaries
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Maximum DB
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Perfect score:
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1: pir1:*
2: pir2:*
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4: pir4:*
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bcl-2-associated p
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Bak protein - huma
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BCL-X-Long - rat
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N;Alternate names: h-bcl-xbeta
C;Species: Homo sapiens (man)
C;Date: 21-Aug-1998 #sequence_revision 21-Aug-1998 #text_change 16-Jul-1999
C;Accession: JE0203
C;Acces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Molecule type: mRNA
A; Residues: 1-227 <BAN>
A; Cross-references: GB:
C; Genetics:
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JE0203
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C; Superfamily: bcl transforming protein
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GB:U72398; NID:g1622940; PIDN:AAB17354.1; PID:g1622941

Result No.

113 114 115 116 117 118 119 119 120 220 220 221 221 221 222 223 224 225 226 227

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probable transcrip	mannosyltransferas	uroporphyrin-III C	NR-13 protein - qu	probable carbamoyl	acetate-CoA ligase	TPR domain protein	probable type II s	conserved membrane	pca operon transcr	Mcl-la protein - z	ferrichrome ABC tr	ק	korA protein - Amy	Bcl-2 related - hu	N-methyl-D-asparta

ALIGNMENTS

R;Satch, T; Irie, S; Krajewski, S.; Reed, J.C. R;Satch, T; Irie, S; Krajewski, S.; Reed, J.C. Gene 140, 291-292, 1994 A;Title: Cloning and sequencing of a cDNA encoding the rat Bcl-2 protein. A;Reference number: I53744; MUID:94193015; PMID:8144041 A;Accession: I53744	gene bcl-2 protein - rat gene bcl-2 protein - rat C;Species: Rattus norvegicus (Norway rat) C;Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change 16-Jul-1999 C:Accession. T53744	RESULT 2	Db 172 TYLNDHLEPWIQENGGWVRTKPLVCPFSLASGQRS 206	Qy 156 EFVRKTLATWLRRRGGWTDVLKCVVSTDPGFRS 188	Db 115TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIAAWMA 171	QY 96 PLQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLG 155	Db 55 PSWHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI 114	Qy 57SPAPGGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHI 95	Db 2 SQSNRELVVDFLSYKLSQKGYSWSQFSDVEENRTEAPEGTESEMETPSAINGN 54	Qy ·21 SPTDKELVAQAKALGREYVHARLLRAGLSWSAPERA 56	à	Query Match 14.8%; Score 161.5; DB 2; Length 227;	

13.

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RESULT 4
JC7383
B-cell lymphoma 2 protein - Chinese hamster
C:Speckes: Cricetulus griseus (Chinese hamster)
C:Date: 17-Nov-2000 #sequence_revision 17-Nov-2000
C:Accession: JC7383
                                                                                                                                                                                                                                                                                                                                                                                                                                                  transforming protein (bcl-2-beta) - chicken C;Species: Gallus gallus (chicken) C;Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 C;Accession: B37332; S35452 R;Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y. Nucleic Acids Res. 20, 4187-4192, 1992 A;Title: Isolation and characterization of the chic A;Reference number: A37332; MUID:92375724; PMID:150A;Accession: B37332
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A;Residues: 1-216 <EGU>
A;Cross-references: EMBL:D11381; EMBL:D11382
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A;Molecule type: mRNA
A;Residues: 1-236 <RES>
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Matches 52
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nes 45; Conserv
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                                                                                                           NRHLHNWIQDNGGWVRACASLSST-----GGWLV 204
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52; Conser
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Pred. No. 4.7e
35; Mismatches
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Pred. No. 2.2e
34; Mismatches
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4.7e-07;
ches 77;
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R;Tilly, J.L.; Tilly, K.I.; Kenton, M.L.; Johnson, A.L. Endocrinology 136, 232-241, 1995
A;Tille: Expression of members of the bcl-2 gene family in onstitutive bcl-2 and bcl-xlong messenger ribonucleic acid A;Reference number: I53295; MUID:95129487; PMID:7828536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Gene: bcl-2
C; Superfamily: bcl transforming
C; Keywords: B-cell lymphoma; ova
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: mRNA
A; Residues: 1-236 <TOM>
A; Cross-references: GB: AJ271720
C; Comment: This protein has ant:
C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Cross-references: EMBL:U34964; NID:gl C;Superfamily: bcl transforming protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C;Species: Rattus norvegicus (Norway rat)
C;Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change
C;Accession: 167432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            R;Tomicic, M.T.; Christmann, M.; Kaina, B. Biochem. Biophys. Res. Commun. 275, 899-903, A;Title: Cloning and functional analysis of A;Reference number: JC7383
A;Contents: Ovary
A;Accession: JC7383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Residues: 1-236 < RES>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Status: preliminary; translated from GB/EMBL/DDBJ
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                                                                                                                                                                                                                                                                                                        28 VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG----
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                                                                                                                                                                     VHRDTAARTSPLRPLVANAGPALSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120
YLNRHLHTWIQDNGGWDAFVELYGPSMRPLFDFSWQSLKTLLSLALVGACITLGAYL
                                                                                                                                                                                                                                                             MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDTGDEDSAPLRRAPTPGIFSFQPESNRTPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         YLNRHLHTWIQDNGGWDAFVELYGPSVRPLFDFSWLSLKTLLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VHRDMAARTSPLRPIVATTGPTLSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----GRLAEVCTVLLRLGDELEQIRPSVYRNVAR-----
                                        FVRKTLATWLRRRGGWTDVLKCV-VSTDPGFRSHW-----LVATLCSFGRFL
                                                                                                                          LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGE 156
                                                                                                                                                                                                                -----GRLAEVCTVLLRLGDELEQIRPSVYRNVAR-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FVRKTLATWLRRGGWTDVLKCV-VSTDPGFRSHWL-VATLCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGE 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDVGDVDAAPLGAAPTPGIFSFQPESNPTPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (fragment)
                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           --GRFATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTE 176
                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                 -GREATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMYPLVDNIALWMTE
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21.5%;
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22.4%;
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Pred. No. 6.5e-07;
                                                                                                                                                                                                                                                                                                                                                                     Score 156;
Pred. No. 7
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                                                                                                                                                                                                                QLHI-P 96
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A; Accession: S52866
A; Status: preliminary
A; Molecule type: mRNA
A; Residues: 1-233 < KAM>
A; Cross references: EMBL
C; Superfamily: bcl trans;
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A; Cross-references: E
C; Genetics:
A; Gene: bcl.x-long
C; Superfamily: bcl ti
                                                                                                                                                                                                                                                                                                                                                  bcl-x long - mouse
C:Species: Mus musculus (house mouse)
C:Species: Mus musculus (house mouse)
C:Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 16-Jul-1999
C:Accession: I49056; S52866
R:Fang, W.; Rivard, J.J.; Mueller, D.L.; Behrens, T.W.
J. Immunol. 153, 4388-4398, 1994
A:Title: Cloning and molecular characterization of mouse bcl-x in B and T l;
A:Reference number: I49055; MUID:95052604; PMID:7963517
A:Recession: I49056
A:Status: preliminary; translated from GB/EMBL/DDBJ
A:Molecule type: mRNA
A:Residues: 1-233 <RES>
A:Residues: 1-233 <RES>
A:Residues: 1-233 <RES>
                                                                                                                                                                                                                                                A;Cross-references: EMBL:U10101; NID:g506647; PIDN:AAA82173.1; R;Kamesaki, H.; Michaud, G.Y.; Takatsu, K.; Okuma, M. submitted to the EMBL Data Library, November 1994 A;Description: IL-5 inhibits anti-IgM-induced apoptosis in an : R;Reference number: S52866
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C;Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 16-Jul-1999
C;Accession: I49057
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A;Molecule type: mRNA
A;Residues: 1-214 <RES>
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J. Immunol. 153, 4388-4398, 1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     bcl-x transmembrane deleted - mouse
                                                                                                                        Cross-references: EMBL:X83574;
Superfamily: bcl transforming
                                                             Query Match
Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PSWHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ---TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMA 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----SPAPGGR-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SQSNRELVV-----DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEAERETPSAINGN
  SPTDKELVAQAKALGREYVHARLLRAGLSWS---
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                                                                                                                                         EMBL: x83574; NID: 9695622; PIDN: CAA58557.1;
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22.3%;
                                                             14.1%;
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                                                                                                                          protein
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                                             29;
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Pred. No. 8.8e-07
                                                           Score 154.5;
Pred. No. 9.1
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.8e-07
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RESULT
S51761
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C; Keywords: alternative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Cross-references: GB:L31532; GB:M16506; NID:g468336; PIDN:AAA37282.1; PID:g387109 R;Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y. Nucleic Acids Res. 20, 4187-4192, 1992 Rittle: Isolation and characterization of the chicken bcl-2 gene: expression in a A;Reference number: A37332; MUID:92375724; PMID:1508712
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C;Date: 31-Dec-1988 #sequence_revision 31-Dec-1988 #text_change 18-Jun-1999
C;Accession: A25960; E37332
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A: Residues: 1-33,'E',34-220,'AL',223-236
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A; Residues: 1-236 < NEG>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C; Species:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Gene: BCL2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Status: preliminary; nucleic acid sequence not shown;
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                                                                                                                   157 FVRKTLATWLRRRGGWTDVLKCV-VSTDPGFRSHWL-VATLCS 197
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                                                                                                                                                                                            LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGE 156
                                                                                                                                                                                                                                   VHREMAARTSPLRPLVATAGPALSPVPPCVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PLQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLG
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                                                                          YLNRHLHTWIQDNGGWDAFVELYGPSMRPLFDFSWLSLKTLLS
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                                                                                                                                                                                                                                                                         ----GRLAEVCTVLLRLGDELEQIRPSVYRNVAR---
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mus musculus (house mouse)
                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
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ternative splicing; mitochondrion; transforming protein;
                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                          -GREATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTE
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                                                                                                                                                                                                                                                                                                                                                                                                           14.18; 22.48;
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                                                                                                                                                                                                                                                                                                                                                                                           36;
                                                                                                                                                                                                                                                                                                                                                                                                         Score 154.5; DB pred No. 9.9e-07
                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
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C;Species: Rattus norvegicus (Norway C;Date: 07-May-1995 #sequence_revisic C;Accession: S51761; S51762

/ rat) ion 01-sep-1995

#text_change

02-Mar-2001

BCL-X protein - rat

R;Michaelidis,

EMBL Data Library,

November

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R:Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y.
Nucleic Acids Res. 20, 4187-4192, 1992
A:Title: Isolation and characterization of the chicken bcl-2 gene: A; Reference number: A37332; MUID:92375724; PMID:1508712
A; Accession: A37332
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A; Molecule type: DNA
A; Residues: 1-233 <MIC>
A; Cross-references: EMBL: X82537; NID: g607176;
A; Cross-references: embryonic; brain
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A; Accession: S51761
A; Status: preliminary
A; Status: preliminary
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C;Genetics:
A;Introns: 125/3
C;Superfamily: b
                                                                                                                                                                                                                                                                                                                              A; Introns: 189/3
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A; Residues: 1-233 <EGU>
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A; Residues: 1-125,189-233 <MI2>
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                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                Superfamily: bcl transforming protein ransmembrane protein; transmembrane protein
                                                                                                                                                                                                                                                                                                                                                    Genetics:
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Best Local
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SEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFV 158 : |: |: : : |::
                                                                                                                                   RGYDNREIVL-----KYIHYKLSQRGYDWAAGEDRPPVPPAPAPAAAPAAVAAAGASS 59
                                                                                                                                                                       RSPTDKELVAQAKALGREYVHARLLRAGLSWSA----PERASPAPGGRLAEVCT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYLNDHLEPWIQENGGW 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EFVRKTLATWLRRRGGW 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SQSNQELVV------DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEPERETPSAINGN 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SPTDKELVAQAKALGREYVHARLLRAGLSWS-----APERA-----APERA
                                                       HHRPEPPGSAAASEVPPAEGLRPAPPGVHLALRQAGDEFSRRYQRDFAQMSGQLHLTPFT 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ---TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMA 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PLQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLG 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PSWHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----SPAPGGR------LAEVCTVLLRLGDELEQIRPSVYRNVARQLHI 95
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22.3%;
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                                                                                                                                                                                                            Score 152.5;
Pred. No. 1.5e
98; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 153.5; DB : Pred. No. 1.2e-06;
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                                                                                           -VLLRLGDELEQIRPSVYRNVARQLHI-PLQ 98
                                                                                                                                                                                                            1.5e-06;
ches 86;
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                                                                                                                                                                                                                                                  DB 2;
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                                                                                                                                                                                                              Indels
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                                                                                                                                                                                                              63;
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                                                                                                                                                                                                                                                                                                                                                 C;Species: Rattus norvegicus (Norway rat)
C;Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change
C;Accession: I67431
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C;Keywords: alternative splicing; trans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R; Negrini, M.; Silini, E.; K
Cell 49, 455-463, 1987
A; Title: Molecular analysis
A; Reference number: A90893;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     transforming protein bc1-2-beta - mouse
C;Species: Mus musculus (house mouse)
C;Date: 31-Dec-1988 #sequence_revision 31-Dec-1988 #text_change 18-Jun-1999
C;Accession: B25960
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                                                                                                                                       A;Cross-references: EMBL:U34963; NID:gr
                                                                                                                                                                                   A; Molecule type: mRNA
A; Residues: 1-233 <RES>
                                                                                                                                                                                                                                                                                                               R;Tilly, J.L.; Tilly, K.I.; Kenton, M.L.; Johnson, Endocrinology 136, 232-241, 1995
                                                                                                                                                                                                                                                                                                                                                                                                       BCL-X-Long -
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A; Residues: 1-199 < NEG>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Cross-references: GB:M16506; NID:g468335; PIDN:AAA37281.1;
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                                  21 SPTDKELVAQAKALGREYVHARLLRAGLSWS------APERA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               97
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                                                                        Conservative
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                                                                                                                                                            EMBL: U34963; NID: g1004376; PIDN: AAA77686.1;
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                                                                                         13.8%;
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22.1%;
DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEPERETPSAINGN
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                                                                        28;
                                                                  Score 151.5; DB 2;
Pred. No. 1.8e-06;
Pred. No. 1.8e-06;
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A; Status: nucleic acid sequence not shown
A; Molecule type: mRNA
A; Residues: 1-69,'G',71-125,189-233 <BO2>
A; Cross-references: GB:L20122; NID:q623736
A; Genetics:
A; Gene: GDR-P777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              apoptosis regulator bcl-xL - human N; Alternate names: bcl-2-related protein N; Ontains: apoptosis regulator bcl-xS C; Species: Homo sapiens (man) C; Date: 16-Aug-1996 #sequence_revision 16 C; Accession: B47537; C47537 R.Boise, L.H.; Gonzalez-Garcia, M.; Poste
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A:Cross-references: GDB:228079
C:Superfamily: bol transforming protein
C:Keywords: alternative splicing; apoptosis
F:1-233/Product: apoptosis regulator bol-xL
F:1-125,189-233/Product: apoptosis regulator
transforming protein bcl-2, splice form alpha - human C;Species: Homo sapiens (man) C;Date: 31-Dec-1988 #sequence_revision 07-Jun-1996 #text_change C;Accession: C37332; A29409; S07452; A24428; A27622; B27622 R;Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y. Nucleic Acids Res. 20, 4187-4192, 1992 A;Title: Isolation and characterization of the chicken hol-2 con
                                                                                                                                                                                                                                                                                                                                                                                    Qy
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A; Residues: 1-233 <BOI>
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;Date: 16-Aug-1996 #sequence_revision 16-Aug-1996 #text_change 16-Jul-1999
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Best Local (
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                                                                                                                                                                                                       TYLNDHLEPWIQENGGW 188
                                                                                                                                                                                                                                        EFVRKTLATWLRRRGGW 172
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Pred. No. 2.
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C; Keywords:
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Cell 47, 19-28, 1986
Cell 47, 19-28, 1986
A:Title: Cloning and structural analysis of cDNAs for bcl-2
A:Topic companies: A24428; MUID:87002488; PMID:2875799
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A; Residues: 1-95, 'A', 97-109, 'G', 111-236, 'S', 238-239 <TSU>
A; Residues: 6B:M13994; NID:g179366; PIDN:AAA51813.1;
A; Cross-references: GB:M13994; NID:g179366; PIDN:AAA51813.1;
A; Note: this sequence has been corrected in reference A37332
R; Seto, M.; Jaeger, U.; Hockett, R.D.; Graninger, W.; Bennett
EMBO J. 7, 123-131, 1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: DNA
A; Residues: 1-6, 'S', 8-58, 'T', 60-128, 'C', 130-239 <HUA2>
A; Note: the sequence was determined from the germline
C; Comment: Constitutive expression of BCL2 following t
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A; Title: Analysis of the structure, transcripts, and protein
A; Reference number: A29409; MUID:86259760; PMID:3523487
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A;Cross-references: GB:M14745; NID:g179370; PIDN:AAA35591.1;
R;Hua, C.; Zorn, S.; Jensen, J.P.; Coupland, R.W.; Ko, H.S.;
Oncogene Res. 2, 263-275, 1988
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A; Residues: 1-239 <SET>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Title: Alternative promoters and exons, A; Reference number: S02452; MUID: 88196071;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Note: this report is a c
R; Tsujimoto, Y.; Croce, C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Molecule type: DNA
A; Residues: 1-239 <E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Description: blocks apoptosis in hematopoietic C; Superfamily: bcl transforming protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Cross-references: GDB:119031; OMIM:151430 A;Map position: 18q21.3-18q21.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: mRNA
A; Residues: 1-58, 'T', 60-239 <HUA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Title: Consequences of the t(14;18) chromosomal translocation A; Reference number: A27622; MUID:88217344; PMID:3285301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: mRNA
A; Residues: 1-58, 'T',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Reference number:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Accession: A29409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Gene: GDB: BCL2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Accession: B27622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Accession: A27622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Accession: A24428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Accession: S02452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Status: nucleic
                                                                                                                                                                                                                                                                                                                                                  37 EYVHARLLRAGLSW-----SAPERASPAPG-----
GGWDAFVELYGPSMRPLFDFSWLSLKTLLS
                                           GGWTDVLKCV-VSTDPGFRSHWL-VATLCS 197
                                                                                              VVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDN
                                                                                                                                             VAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRR 169
                                                                                                                                                                                                  APGAAAGPALSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTAR----GRFAT
                                                                                                                                                                                                                                                                                               KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  alternative
                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Smith, S.D.;
                                                                                                                                                                                                                                                                                                                                                                                                Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             splicing; apoptosis; B-cell lymphoma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 correction
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                                                                                                                                                                                                                                              VLLRLGDELEQIRPSVYRNVARQLHI-PLQSEPVVTDAFLA 109
                                                                                                                                                                                                                                                                                                                                                                                                   36;
                                                                                                                                                                                                                                                                                                                                                                                                                       Score 150.5;
Pred. No. 2.3
                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                somatic mutation; PMID:2834197
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nes 75;
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t(14:18) chromosomal translocati
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Wright, J.J.;
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Search completed: April 29, 2003, 11:26:33 Job time: 14.3473 secs
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A;Map position: 19q13.3-19q13.4
C;Superfamily: bot transforming protein
C;Keywords: alternative splicing; blocked amino end; cytosol; heterodimer; homodimer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B47538
bc1-2-3-8
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A;Residues: 1-218 <OLT>
A;Cross-references: GB:L22474; NID:g388167; PIDN:AAA03620.1; PID:g388168
A;Note: the amino end of the mature protein is blocked
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 13.7%; Score 149.5; DB 2; Length 218; Best Local Similarity 28.8%; Pred. No. 2.6e-06; Matches 46; Conservative 29; Mismatches 72; Indels 13; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gene: GDB:BAX
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11 74, 609-619, 1993
Title: Bol-2 heterodimerizes in vivo with a conserved homolog, Bax, that accelerates
Reference number: A47538; MUID:93364978; PMID:8358790
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                                                                                                                                                                                                                                                                                                      124 ALCTKVPELIRTIMGWTLDFLRERLLGWIQDQGGWVRLLK 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                 138 CVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLK 177
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            71 DS-----NMELQRMIAAVDTDSPREVFFRVAADMFSDGNFNWGRVVALFYFASKLVLK 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAG-ITWGKVVSLYSVAAGLAVD 137
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                                                                                                                                                                                                                                                                                                                                                           /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1990_DAT:*
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                Breast and ovarian Human Bcl-2-like p Drosophila melanog Drosophila melanog
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Human Bok protein
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	233 21	ω ω	3	ω	72	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	21	39	36	36	36	36	<u>ω</u>	32	32	33	39	239 22	85
ALIGNMENTS		AAW3153	AAW058	AAR6888	AAY2112	ABB0522	ABB7598	2 AAB74129	AAG6403	AAE0857	AAW8781		AAW40217		AAR			⊳			AAG6403		3 AAW10688			AAB3513	AAB7412	AAW8781	AAB7330	AAW9434	AAW01		AAB5053	AAB4828	AAU00222
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		n anti-apopto	in.	thymus BCL-	bc12	D34A	Protein sequence.		Bcl.	-	an Bcl-2-	Bc1-2 wi	2	osis-bi	bc1-2	n bcl-ž pro	ncoq	ce of	acid s	Bcl-2 prote	Bc1-2 p	. Homo	ega protein	Bcl-2 p	Bc1-2 pc	Bcl-2.	cl-2.	Bcl -2	ld-t	Human Bcl-2 mutant	sis-b	t rat	Bcl-2 prote	n BCL-2	LEn-Bcl-XL apoptos

RESULT 1
AAY14153
ID AAY14153
XX
AC AAY1
XX
XX
XX
XX
DT 27-C
DT 27-C
DT 27-C
DX
EAC Rat
XX
DE Ra

AAY14153;

AAY14153 standard; Protein; 213 AA.

Rat Bok protein sequence. 27-JUL-1999 (first entry)

××	DR	DR	××	ΡI	××	PA	××		××		××	Ĭ	××	_	××	SO	××	ΧW				KW	^^
	N-PSDB; AAX61103.	WPI; 1999-327356/27.		Hsu SY, Hsueh AJW;		(STRD) UNIV LELAND STANFORD JUNIOR.		07-NOV-1997; 97US-0064943.		04-NOV-1998; 98WO-US23523.		20-MAY-1999.		WO9924453-A1.		Rattus rattus.		proliferative disorder; rat.	ovarian carcinoma; glandular epithelial carcinoma; cancer; therapy;	reproductive tissue; uterine carcinoma; testicular carcinoma; cervix;	<pre>pro-apoptotic protein; apoptosis inducer; hyperproliferation disease;</pre>	Bok protein; Bcl-2-related ovarian killer; BH3i variant; endometriosis;	

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RESULT 2
AAV14155
ID AAV1
XX AAV1
AC AAV1
XX BOK
KW BOK
KW Pro-
KW repr
KW prol
XW prol
XX HOMC
XX HOM
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Matches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein can be used to elucidate apoptosis mechanisms in reproductive other tissues, and provide a means for manipulating apoptosis. The Bok protein and transgenic animal are also useful for identifying ligands substrates. Modulation of the gene activity in vivo is useful for prophylaxis and therapy of, e.g. cancer and other proliferative disorders. Bok genes are also useful for identification of cell type based on expression. Identification of Bok as a new pro-apoptotic protwith wide tissue distribution and heterodimerisation properties facilitates elucidation of apoptosis mechanisms.
                                                                                                                                                                                                                                                                                                                                           pro-apoptotic protein; apoptosis inducer; hyperproliferation disease; reproductive tissue; uterine carcinoma; testicular carcinoma; cervix; ovarian carcinoma; glandular epithelial carcinoma; cancer; therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein, of the invention. Coding sequences for Bok or BH31 variants of pro-apoptotic Bok-related protein can be introduced into cell populations to upregulate expression of the proteins in order to induce apoptosis in the cell population. This is useful for treatment of diseases where there is hyperproliferation of reproductive tissue, e.g. uterine, testicular and ovarian carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic BCl-2 proteins. The Bok
                                                                                                                                                                                                        W09924453-A1
                                07-NOV-1997;
                                                                                      04-NOV-1998;
                                                                                                                                               20-MAY-1999
                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                         proliferative
                                                                                                                                                                                                                                                                                                                                                                                                                                        Bok protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAY14155 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mammalian Bok (Bcl-2-related protein and its related gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         27-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGRLAEVCTYLLKLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STDPGFRSHWLVATLCSFGRFLKAAFFLLLPER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STDPGFRSHWLVATLCSFGRFLKAAFFLLLPER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                               Bcl-2-related ovarian killer; BH3i variant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                         disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       is a mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                53-54; 62pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AA;
                                97US-0064943
                                                                                      98WO-US23523.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bok (Bcl-2-related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ovarian killer), a pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 1094; DB 20;
Pred. No. 3.6e-111;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sequences for Bok or BH31 variants of can be introduced into cell populations roteins in order to induce apoptosis in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ovarian killer)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                     endometriosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The Bok
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein
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GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT

GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT 120

0

WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV

180 120

180

WGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV

RESULT 3 AAB41444

AAB41444 standard; Protein;

A

γΩ B γ Вþ QУ

STDPGFRSHWLVATLCSFGRFLKAAFFLLLPER 213

STKPGFRSHWLVATLCSFGRFLKAAFFLLLPER

. 213

В

181 181 121 121 61 61

open reading

frame;

ORFX; detection;

hepatotropic;

Human ORFX ORF1208 polypeptide sequence

SEQ ID NO:2416 cytostatic;

08-FEB-2001

(first entry)

antianaemic; gene therapy; cancer; proliferative disorder; hypertension; neurodegenerative disorder; osteoarthritis; graft vs host disease; cardiovascular disease; diabetes mellitus; hypothyroidism; SCID; AIDS:

hypotensive; dermatological; immunosuppressive; antiinflammatory, antiviral; antibacterial; antifungal; antirheumatic; antithyroid;

vulnerary; antipsoriatic; antiparkinsonian; nootropic; neuroprotective; anticonvulsant; osteopathic; antiarthritic; immunosuppressant; cardiant; immunostimulant; thrombolytic; coagulant; vasotropic; antidiabetic;

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Qy
                                                                                                                                                Matches
                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                           and ovarian carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic Bol-2 proteins. The Bok protein can be used to elucidate apoptosis mechanisms in reproductive and other tissues, and provide a means for manipulating apoptosis. The Bok protein and transgenic animal are also useful for identifying ligands or substrates. Modulation of the gene activity in vivo is useful for prophylaxis and therapy of, e.g. cancer and other proliferative disorders. Bok genes are also useful for identification of cell type based on expression. Identification of Bok as a new pro-apoptotic protein that the process of the second content of the protein prophylaxis and therapy of the second content of the 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This sequence is a mammalian Bok (Bcl-2-related ovarian killer) protein, of the invention. Coding sequences for Bok or BH3i variants of pro-apoptotic Bok-related protein can be introduced into cell populations to upregulate expression of the proteins in order to induce apoptosis in the cell population. This is useful for treatment of diseases where there is hyperproliferation of reproductive tissue, e.g. uterine, testicular
                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein and its related gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hsu
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (STRD ) UNIV LELAND STANFORD JUNIOR
                                                                                                                                                                                                                                                                                                                                                              facilitates elucidation of apoptosis mechanisms
                                                                                                                                                                                      Local
wide tissue distribution and heterodimerisation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2;
                                                                                                                                                210;
                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Page 55-56; 62pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bok (Bcl-2-related ovarian killer), a pro-apoptotic
                                                                                                                                                                                                                                                                                             213 AA;
                                                                                                                                                Conservative
                                                                                                                                                                               98.4%;
                                                                                                                                                0,:
                                                                                                                                         $core 1076; DB 20;
Pred. No. 3.3e-109;
0; Mismatches 3;
                                                                                                                                                                                                             Length
                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                    properties
                                                                                                                                                                                                                 213;
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Best Local
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02-APR-1999;
05-APR-1999;
30-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nucleic acids can be used to express ORFX proteins in gene therapy vectors. The proteins and nucleic acids may be used to treat cancers, proliferative disorders, neurodegenerative disorders, osteoarthritis, graft vs host disease, cardiovascular disease, diabetes mellitus, hypertension, hypothyroidism, cholesterol ester storage, systemic lupus erythematosus, severe combined immunodeficiency (SCID), AIDS, viral, bacterial or fungal infection, malaria, autoimmune disorders, asthma,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       antipsoriatic; antiparkinsonian; nootropic; neuroprotective; osteopathic; anticonvulsant; antiarthritic; immunosuppressant; immunostimulant; cardiant; thrombolytic; coaquiant; vasotropic; antidiabetic; hypotensive; dermatological; immunosuppressive; antiinflammatory; antibacterial; antiviral; antifungal; antirheumatic; antithyroid; and antianaemic. The sequences can be used for determining the presence of or predisposition to, or preventing or treating pathological conditions associated with an OREX-associated disorder. The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               allergies, aplastic anaemia, burns, wounds, bone and cartilage damage nocturnal haemoglobinuria, antiinflammatory disease; to enhance coagulation; to inhibit thrombosis; and as a contraceptive.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Novel nucleic acids and peptides derived from open reading frame X, useful for treating e.g. cancers, proliferative disorders, neurodegenerative disorders and cardiovascular disease -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           erythematosus, severe combined immunoueritation, combacterial or fungal infection, the state and are sounds, bone and the state of the 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              which represent the human ORFX open reading frames 1 to 3161. The ORFX sequences have activities such as: cytostatic; hepatotropic; vulnerary;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Shimkets RA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cholesterol ester storage; systemic lupus erythematosus; infection; severe combined immunodeficiency; malaria; autoimmune disorder; asthm. severe combined anaemia; nocturnal haemoglobinuria; burn; wound; bone damage; cartilage damage; antiinflammatory disease; coagulation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31-MAR-2000; 2000WO-US08621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             05-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAC74446 to AAC77606 encode the proteins given in AAB40237 to AAB43397,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (CURA-) CURAGEN CORP.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         thrombosis;
                                                                                                                                                                                                                                                                                                                                                             1 MEVLRRSSVEAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                   WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
                                                                                                                                                                                               GRILAEVCAVLLRLGDELEMIRPSVYRNVARQLHISLQSEPVVTDAFLAVAGHIFSAGIT
                                                                                                                                                                                                                                                                GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT
                                                                                                                                                                                                                                                                                                                                 MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Page 1750-1751; 5507pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99US-0127607.
99US-0127636.
99US-0127728.
2000US-0540763.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Leach M;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96.2%;
96.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 1052; DB 21;
Pred. No. 1.4e-106;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     disorder; asthma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                  180
                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                                                                                                                  60
                                                                                                                                                                                                                                                                                                                                 60
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Ş B Qγ

61 GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT

120

60

1;

1 MEVLRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP

MEVLRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP

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ARESULT 4
ARAY14154
ADVIA14154
AD
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   Matches
                                     Best Local
                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This sequence is a mammalian Bok (BC1-2-related ovarian killer) protein, of the invention. Coding sequences for Bok or BH31 variants of pro-apoptotic Bok related protein can be introduced into cell populations to upregulate expression of the proteins in order to induce apoptosis in the cell population. This is useful for treatment of diseases where there is hyperproliferation of reproductive tissue, e.g. uterine, testicular and ovarian carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bok protein; Bol-2-related ovarian killer; BH31 variant; endometriosi pro-apoptotic protein; apoptosis inducer; hyperproliferation disease; reproductive tissue; uterine carcinoma; testicular carcinoma; cervix; ovarian carcinoma; glandular epithelial carcinoma; cancer; therapy; ovarian carcinoma; glandular epithelial carcinoma;
                                                                                                                                                                                                                                                                                         protein and transgenic animal are also useful for identifying ligands substrates. Modulation of the gene activity in vivo is useful for prophylaxis and therapy of, e.g. cancer and other proliferative disorders. Bok genes are also useful for identification of cell type
                                                                                                                                                                                                                                                                                                                                                                                                                           by co-expression with selective anti-apoptotic Bcl-2 proteins. The Bok protein can be used to elucidate apoptosis mechanisms in reproductive and other tissues, and provide a means for manipulating apoptosis. The Bok
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 2; Page 54-55; 62pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mammalian Bok (Bcl-2-related ovarian protein and its related gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 07-NOV-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               04-NOV-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAY14154 standard; Protein;
                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 1999-327356/27.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20-MAY-1999
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rattus rattus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                proliferative disorder; rat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              27-JUL-1999
                                                                                                                                                                                                   facilitates
                                                                                                                                                                                                                              with wide tissue distribution and
                                                                                                                                                                                                                                                                 based on expression. Identification of Bok as a new pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (STRD ) UNIV LELAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STDPGLRSHWLVAALCSFGRFLKAAFFVLLPER
                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hsueh
                                                                                                                                  170
                                                                                                                                                                                                   elucidation
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first
                                                                                                                                  ΑA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 97US-0064943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98WO-US23523
                                  76.7%;
79.3%;
                                                                                                                                                                                                   of
                                                                                                                                                                                            apoptosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            170
   0;
                              Score 839.5; DB 2
Pred. No. 1.7e-83;
   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ΑA
                                                                                                                                                                                                                              heterodimerisation properties
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           killer), a pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             213
                                                                 Length
   43;
Gaps
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                                                                                                                          CC protein, of the invention. Coding sequences for Bok or BH31 variants of crossin, of the invention. Coding sequences for Bok or BH31 variants of crossin, of the invention coding sequences for Bok or BH31 variants of crossing in control of the cell population. This is useful for treatment of diseases where there come is hyperproliferation of reproductive tissue, e.g. uterine, testicular cand ovarian carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic Bcl-2 proteins. The Bok content can be used to elucidate apoptosis mechanisms in reproductive and cother tissues, and provide a means for manipulating apoptosis. The Bok content can be used to elucidate apoptosis mechanisms in reproductive and content and transgenic animal are also useful for identifying ligands or constrates. Modulation of the gene activity in vivo is useful for constrates. Bok genes are also useful for identification of cell type based on expression. Identification of Bok as a new pro-apoptotic protein with wide tissue distribution and heterodimerisation properties or the content of the content o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                 Query Match
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bok protein; Bcl-2-related ovarian killer; BH3i variant; endometriosis; pro-apoptotic protein; apoptosis inducer; hyperproliferation disease, reproductive tissue; uterine carcinoma; testicular carcinoma; cervix; ovarian carcinoma; glandular epithelial carcinoma; cancer; therapy; proliferative disorder; human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAY14156 standard;
                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This sequence is a mammalian Bok (Bcl-2-related ovarian killer)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein and its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      07-NOV-1997;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human Bok protein sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mammalian Bok (Bcl-2-related protein and its related gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (STRD ) UNIV LELAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20-MAY-1999
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1999-327356/27.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STDPGFRSHWLVATLCSFGRFLKAAFFLLLPER
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWWDVLKCVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAX61106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Page 57-58; 62pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hsueh AJW;
                                                                                              170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                              AA,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Protein;
                          75.78;
78.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANFORD JUNIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         170
                                               Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ovarian killer), a pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A
                                                 828.5; DB 20;
5;
. 2.7e-82;
3;
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                                            Length 170;
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Matches

167;

Conservative

Local

Similarity

Pred. No. Mismatches

Indels

43;

Gaps

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RESULT 6
AAB58949
ID AAB5
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antidiabetic; antiinflammatory; antiulcer; vulnerary; anticonvulsant; antibacterial; antifungal; antiparasitic and cardiant activity. The polynucleotide and protein sequences are used in the diagnosis of cancer, particularly breast and ovarian cancer. The nucleic acid sequences,
                                                                   isolation and characterisation of the DNA and protein sequences of the invention. The breast and ovarian cancer associated DNA, protein, agonist or antagonist sequences exhibit cytostatic; immunosuppressive; nootropic; neuroprotective; antiviral; antiallergic; hepatotropic;
                                                                                                                                       Sequences AAF21614 - AAF22031 represent DNA sequences encoding human proteins AAB58711 - AAB59128. The DNA and protein sequences are associated with breast and ovarian cancer. Included in the invention are sequences AAF22032 - AAF22040 and AAB59129 which are used in the
                                                                                                                                                                                                                                   Claim 11;
                                                                                                                                                                                                                                                                      disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Addison's disease; allergy; autoimmune haemolytic anaemia; autoimmune thyroiditis; diabetes mellitus; Crohn's disease; multiple sclerosis; rhemmatoid arthritis; ulcerative coliticardiovascular disorder; wound healing; neurological disease
                                                                                                                                                                                                                                                                                   New human breast and ovarian cancer associated gene sequences and polypeptides encoded by these genes, useful in the prevention, treatment and diagnosis of cancer, immune disorders, cardiovascula
                                                                                                                                                                                                                                                                                                                                                            N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  08-MAR-2000; 2000WO-US05881.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO200055173-A1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human; breast cancer; ovarian cancer; cytostatic;
nootropic; neurpprotective; antiviral; antiallerg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Breast and ovarian cancer associated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAB58949 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                               (HUMA-) HUMAN GENOME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            antidiabetic; antiinflammatory; antiulcer; vulnerary; anticonvulsant; antibacterial; antifungal; antiparasitic; cardiant; immune disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               138
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DB; AAF21852.
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The invention provides nucleic acid molecules (NAM1) encoding 4 human Bcl-2-like polypeptides (PEP1). The NAM1 and BEP1 may be used in the prevention, diagnosis and treatment of diseases associated with inappropriate Bcl-2-like polypeptides' expression. The NAM1 may be used to produce the soluble Bcl-2-like polypeptides by standard recombinant methodolgy. The polypeptides may also be used as antigens in the production of antibodies against Bcl-2 and in assays to identify modulators of Bcl-2 expression and activity. The anti-Bcl-2 antibodies and antagonists may be used to down regulate expression and activity.
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                                                                                                                                                                                                                                                          Claim 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-FEB-2000; 2000US-0179487
07-FEB-2000; 2000US-0180697
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (HUMA-) HUMAN GENOME SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29-OCT-2001
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DB; AAH47021.
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                                                                                                                                                                                       Disclosure; SEQ ID NO 19995;
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No. 3
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The invention relates to an isolated nucleic acid detection reagent capable of detecting 1000 or more genes from Drosophila. The invent useful in developmental biology and in elucidating cell signalling cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABLIG176-ABL30511), expressed DNA sequences (ABLG1840-ABL16175) and the encoded proteins

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Matches 56
specification, but was obtained in electronic format directly from at ftp.wipo.int/pub/published_pct_sequences.
                                                     capable of detecting 1000 or more genes from Drosophila. The inventuation in developmental biology and in elucidating cell signalling cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL16176-ABL30511), expressed DNA sequences (ABL01840-ABL16175) and the encoded proteins
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                                                                                                                                                                                New isolated nucleic a
genes from Drosophila
interactions -
                                                                                                                                                                                                                                 N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Drosophila melanogaster polypeptide
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                                                                                                                                The invention relates to an isolated nucleic acid detection reagent
                                                                                                                                                        Disclosure; SEQ ID NO 18072;
                                                                                                                                                                                                                                                                      Venter
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                                            (ABB57737-ABB72072)
                                                                                                                                                                                                                                                                                              (PEKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Drosophila; developmental biology; cell signalling; insecticide;
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                                                                                                                                                                                                                                                                                                                                                     chronic active hepatitis; Stevens-Johnson syndrome; sarcoidosis; idiopathic sprue; lichen planus; Graves ophthalmopathy; primary biliary cirrhosis; uveitis posterior; lung fibrosis; reticular dysgenesis; agammaglobulinaemia, hypogammaglobulinaemia; Wiskott-Aldrich syndrome; ataxia telangiectasia; DiGeorge syndrome; Bloom syndrome; Fanconi anaemia; AIDS; therapy; diagnosis.
                                          N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                    acute necrotising haemorrhagic encephalopathy; anaemia; idiopathic bilateral progressive sensorineural hearing loss; thrombocytopenia; polychondritis; Wegener's granulomatosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  systemic lupus erythematosus; autoimmune thyroiditis; allergy; psoriasis; Sjogren's Syndrome; alopecia areata; Crohn's diseas aphthous ulcer; iritis; conjunctivitis; keratoconjunctivitis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bcl-x gamma; mouse; apoptosis; T cell receptor; immunodeficie autoimmune disorder; graft-versus-host disease; diabetes mel arthritis; multiple sclerosis; myasthenia gravis; dermatitis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mouse BCL-x gamma
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  provides
               BCL-x
                                                                                 Cantor H,
                                                                                                                                      02-AUG-1996;
                                                                                                                                                                                                                      WO9805777-A2
                                                                                                                                                                                                                                                             Domain
                                                                                                                                                                                                                                                                                                                               Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ulcerative colitis; asthma; cutaneous lupus erythematosus; scleroderma; vaginitis; proctitis; erythema nodosum leprosum;
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DB; AAV17638.
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               gamma,
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Pred. No. 3.6e
29; Mismatches
              the BCL-x
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  dependent
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      diabetes mellitus;
 apoptosis,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Clichen planus, Graves ophthalmopathy, sarcoidosis, primary biliary clirrhosis, uveitis posterior, and interstitial lung fibrosis.

BCL-x gamma activity can be upmodulated, e.g. by gene therapy, to ameliorate e.g. severe combined immunodeficiency, adenosine deaminase deficiency, purine nucleoside phosphorylase deficiency, MHC class II deficiency, reticular dysgenesis, X-linked agammaglobulinaemia, X-linked hypogammaglobulinaemia, Ig deficiency with increased IgM, ig heavy chain-gene deletions, k-chain deficiency with increased IgM, Ig heavy chain-gene deletions, k-chain deficiency with increased IgM, Ig heavy chain-gene deletions, k-chain deficiency with increased IgM, Ig heavy chain-gene deletions, k-chain deficiency and infancy, Wiskott-Aldrich syndrome, ataxia telangietasia, Dideorge syndrome, Wiskott-Aldrich syndrome, ataxia telangietasia, Dideorge syndrome, Eloom syndrome, and Down syndromes associated with immunodeficiency, as well as other syndromes associated with immunodeficiency, as well as other syndromes associated with immunodeficiency and immunodeficiencies resulting from other causes, such as HIV disease and AIDS. Additionally, it may be desirable to case of other disorders, e.g. cellular responses to tumours, or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sjogren's syndrome, alopecia areata, allergic responses to arthropod bite, Crohn's disease, aphthous ulcer, iritis, conjunctivitis, keratoconjunctivitis, ulcerative colitis, asthma,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   erythematosus, autoimmune thyroiditis, dermatitis, psoriasis, Sjogren's syndrome, alopecia areata, allergic responses to
                                                AAU00222 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          transplantation, and autoimmune diseases e.g. diabetes mellitus, arthritis, multiple sclerosis, myasthenia gravis, systemic lupus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       expressed in host cells and used to screen for modulator compound. BCL-x gamma activity can be down-modulated in order to ameliorate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           develop products for treating autoimmune disorders immunodeficiencies
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      an autoimmune disorder such as graft-versus-host disease, cases of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   with resistance to apoptosis.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             isoform of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        115
                                                                                                                                                                                                                                                                                    172 TYLNDHLEPWIQENGGWGVSGGTPLRSVFRRLVQV-PGVAEHVCDPSLWEVET 223
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PSWHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SQSNRELVV-----DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEAERETPSAINGN
                                                                                                                                                                                                                                                                                                                                                                            EFVRKTLATWLRRRGGW-----TDVLKCVVSTDPGFRSH-----WLVAT 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----SPAPGGR------LAEVCTVLLRLGDELEQIRPSVYRNVARQLHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     84; 123pp;
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                                                Protein; 485
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22.3%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 159; DB 19;
Pred. No. 5.2e-09;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BCL-x gamma polypeptides can be ed to screen for modulator compo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
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the fusion protein to the target cell and the Bcl-XL domain, which modifies an apoptotic response of the target cell. The fusion protein is useful for modifying (inhibiting or enhancing) apoptosis in a target cell, such as neuron, lymphocyte, cancer, neoplasm, macrophage, epithelial, stem, tumour or hyper-proliferative cell or an adipocyte. It is also useful for reducing apoptosis in a subject after transient ischaemic neuronal injury, especially spinal cord injury. The fusion protein may be used to treat various diseases and injury conditions through inhibition or enhancement of apoptotic cellular response, including neurodegenerative disorders such as Alzheimer's disease, Huntington's disease, spinal muscular atrophy, stroke episodes and unregulated cell growth as in tumours and various cancers. The apoptosis-modifying fusion protein can be delivered effectively throughout the body and targeted to selective tissue and cells.
                                                                                                                                                                                                                                                        The sequence represents the amino acid sequence of LFn-Bcl-XL apoptosis-modifying fusion protein comprising anthrax lethal factor (LF) sequence fused to Bcl-XL. The functional apoptosis-modifying fusion protein is capable of binding a target cell and integrating into or crossing a cellular membrane of the target cell. The apoptosis-modifying fusion protein comprises at least two domains: the DTR domain, which targets
                                                                                                                                                                                                                                                                                                                                                                                                                       Novel fusion protein for modifying apoptosis in target cell and reducing apoptosis after transient ischaemic neuronal injury, h domains which targets protein to a cell and modifies apoptotic:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human; LFn-Bcl-XL; apoptosis; cancer; spinal muscular atrophy; anthrax lethal factor; neoplasm; tumour; hyper-proliferation; Alzheimer's disease; neurodegenerative disorder; stroke;
                                                                                                                                                                                                                                                                                                                                                                           Claim 4; Page 64-65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Youle
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Huntington's disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LFn-Bcl-XL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 transient ischaemic neuronal injury; spinal cord
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DB; AASO0250.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Liu X,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               apoptosis-modifying
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
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277..48
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21..276
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Collier RJ;
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.e= "Anthrax lethal factor amino acids 1
                                                                                                                                                                                                                                                                                                                                                                         65pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "6x histidine tag"
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                                                                                                                                                                                                                                                                                                                                                                                                                                          has two
                                                                                                                                                                                                                                                                                                                                                                                                                         response
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Query Match Best Local S Matches 47

l Similarity 47; Conserv

Conservative

14.4%; Score 158; DB 22; 21.8%; Pred. No. 1.7e-08; Live 33; Mismatches 88;

Length 485; Indels

48;

Gaps

4

Sequence

485

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                                    Query Match
Best Local S
Matches 47
                                                                                                                                         The invention relates to methods of altering the polypeptide levels in a cell, using proteins selected from S-phase kinase associated proteins 1 and 2 (SKP1, SKP2), SKP2-like proteins (ZF) and CCU-1 (a member of the cullin/CDC53 family of proteins). The method is useful for altering the level of p27, cyclin E, Max, Mad, c-Myc, MDM2, p53, Bax, Bad or Bcl-2 polypeptide in a cell. SKP2 and SKP2-like protein levels are useful for detecting tumours, and in monitoring tumor treatment in a mammal. Agents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S-phase kinase associated protein; CUL-1; cullin; CDC53; p27; cyclin;
                                                                                        Sequence
                                                                                                                                                                                                                                               Claim 5; Page 104-108;
                                                                                                                                                                                                                                                                        Modulating polypeptide levels in a cell, diagnosing and treating tumor, involves altering levels of proteins such as S-phase kinase associated proteins 1, 2 and cullin/CDC53 proteins -
                                                                                                                                                                                                                                                                                                                              N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human BCL-2 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAB48288 standard;
                                                                                                                 treating
                                                                                                                                                                                                                                                                                                                                         WPI; 2001-061703/07
                                                                                                                                                                                                                                                                                                                                                                                                                      04-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                              05-JUN-2000; 2000WO-US15449
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bcl-2; tumour; cytostatic.
                                                                                                                            modulate interactions between SKP and target proteins are useful for
          EYVHARLLRAGLSW-----SAPERASPAPG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ESVDKEMQVLVSRIAAWMATYLNDHLEPWIQENGGW 464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EFELRYRRAFSDLTSQLHI----TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EAPEGTESEMETPSAINGNPSWHLADSPAVNGATAHSSSLDAREVIPMAAVKQALREAGD
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EVLRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWS---
<u>::</u>
                                                                                                                                                                                                                                                                                                                                                                  Η,
                                                  Similarity
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                                                                                                                                                                                                                                                                                                                                                                                             UNIV YALE
                                                                                                                                                                                                                                                                                                                                                                   Tsvetkov
                                                                                        239 AA;
                                   14.3%;
ilarity 22.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein;
                                                                                                                                                                                                                                               162pp; English.
                                                                                                                                                                                                                                                                                                                                                                   Kondo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----SPAPGGR-----
                                    36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   239
                                                 Score 156.5;
Pred. No. le
                                                                                                                                                                                                                                                                                                                                                                   Η,
                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AΑ
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SKP1; SKP2; SKP2-like protein; E; Max; Mad; c-Myc; MDM2; p53;
                                                  1e-08
                                                              DВ
                                    74;
                                                             22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----LAEVCTVLLRLGD
                                    Indels
                                                           Length
         --GRLAEVCT--
                                    53;
                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bax;
          69
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RESULT 13
AAB50537
ID AAB50
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                           Query Match
Best Local S
Matches 47
                                                                                                                                                                                           The present invention describes a method for screening for an apoptosis inhibitor or an apoptosis promoter in which VDAC-liposome, an index substance which can pass VDAC and a sample are incubated and the change in the concentration of the index substance during the incubation is detected to judge the presence of apoptosis inhibition or apoptosis promotion. The apoptosis inhibitor or the apoptosis promoter can be used as a drug and a diagnostic agent for various diseases caused by apoptosis inhibition or apoptosis promotion. The present sequence represents the human Bcl-2 protein, which is an apoptosis inhibitor used in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                             Screening of an apoptosis inhibitor or promoter which can l drug and a diagnostic agent for various diseases caused by inhibition or apoptosis promotion -
                                                                                                                                                                                                                                                                                                                                                                                                                                        N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human Bcl-2 protein sequence SEQ
                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                    Claim 11; Page 13-14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (KAGA-) KAGAKU GIJUTSU SHINKO JIGYODAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             08-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       08-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JP2000287689-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    apoptosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Human; Bcl-2;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAB50537;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAB50537 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               170
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 77
                           70
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               77
APGAAAGPALSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSRQLHLTPFTAR-----GRFAT 132
                                                      KYTHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHTAASRDPVARTSPLQTPA 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                     2001-065575/08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGWTDVLKCV-VSTDPGFRSHWL-VATLCS 197
                                                                                EYVHARLLRAGLSW-----SAPERASPAPG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGWDAFVELYGPSMRPLFDFSWLSLKTLLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDN 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRR 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APGAAAGPALSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSRQLHLTPFTAR----GRFAT 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHTAASRDPVARTSPLQTPA
                                                                                                              1 Similarity 47; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                         AAC90809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    promoter;
                                                                                                                                                                     239
                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bcl-xL; Bax; VDAC;
                                                                                                                                                                    ΑA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99JP-0101888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99JP-0101888
                                                                                                                         14.3%;
                                                                                                                                                                                                                                                                                                                                                    22pp; Japanese.
                          -VLLRLGDELEQIRPSVYRNVARQLHI-PLQSEPVVTDAFLA 109

    VLLRLGDELEQIRPSVYRNVARQLHI-PLQSEPVVTDAFLA 109

                                                                                                              36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 239
                                                                                                           Score 156.5;
Pred. No. 1e-0
36; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                apoptosis
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                                                                                                                           1e-08;
                                                                                                                                       DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                inhibitor; detection;
                                                                                                              74;
                                                                               ----GRLAEVÇT--
                                                                                                              Indels
                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                            ) be used as only apoptosis
                                                                                                                                          239;
                                                                                                            53;
                                                                                                            Gaps
                                                                                  69
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110 VAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRR 169

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ARESULT 1.
ANAB73304
AC ANAB
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                                                                               밁
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                                                                                                                                                                                            Matches
                                                                                                                                                                                                                      Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                   protein is able to permeate the cell membrane, thus enhancing its ability to be taken up into a cell and to act as an inhibitor of apoptosis (programmed cell death). Bcl-xFNK and nucleic acids encoding it are useful in remedies for diseases associated with cell death and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               encoding it. The mutant rat Bcl-x protein (Bcl-xFNK) has the substitutions Y22F, Q26N, and R165K relative to the wild-type Bcl-xL protein. The invention also encompasses recombinant vectors and host cells comprising the modified nucleic acid sequence. The mutant Bcl-x
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Modified cDNA of rat bcl-x gene and encoded protein with membrane permeability to enhance uptake for effective inhibition of cell deat e.g. apoptosis, useful in remedies for diseases associated with cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ohta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mutant rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAB73304 standard; Protein; 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The invention relates to a mutant rat Bcl-x protein and the cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 1; Page 46-47; 56pp; Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2001-211219/21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (NISC-) JAPAN SCI & TECHNOLOGY CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17-AUG-2000; 2000WO-JP05502.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Rattus norvegicus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        programmed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Rat Bcl-xL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    22-MAY-2001
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                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                            Bcl-xFNK.
                                                                                                                                                                                                                                                                                                                                                                                                            it are useful in remedies for diseases associated with cell death and in additives for maintaining the stability of transplanted cells and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       170
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BCl-xL mutant; Bcl-xFNK; apoptosis inhibitor; membrane permeable;
rammed cell death inhibitor; wild-type; antiapoptotic;
death-associated disease; tissue transplant preservative; mutein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGWTDVLKCV-VSTDPGFRSHWL-VATLCS 197
                                                                                                                                   SPTDKELVAQAKALGREYVHARLLRAGLSWS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGWDAFVELYGPSMRPLFDFSWLSLKTLLS
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                                                                                  SQSNRELVV-----
                                                                                                                                                                                                                                                                                                                                                                                  The
                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bcl-xL protein,
                                                                                                                                                                                                                                                                                                     233 AA;
                               -SPAPGGR--
                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                  present
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                                                                                                                                                                                                                                                                                                                                                                                     sequence
                                                                                  -DFLSYKLSQKGFSWSNFSDVEENRTEAPEETEPERETPSAINGN
                                                                                                                                                                                                                      14.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bcl-xFNK
                                                                                                                                                                                            29;
                                                                                                                                                                                                                      Score 155.5; DB : Pred. No. 1.2e-08
                                                                                                                                                                                                                                                                                                                                                                                     represents
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A
                                                                                                                                                                                            Mismatches
                         -LAEVCTVLLRLGDELEQIRPSVYRNVARQLHI
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                                                                                                                                                                                                                                                                                                                                                                                        the
                                                                                                                                                                                                                                               DB 22;
=
                                                                                                                                        ---APERA---
                                                                                                                                                                                                                                                                                                                                                                                        mutant
                                                                                                                                                                                            ; 69
                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                        rat Bcl-xL
                                                                                                                                                                                                                                                  233;
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                                                                                                                                                                                                                                                                                                                                                                                     protein
                                                                                                                                                                                         Gaps
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                                                                                                                                                    Matches
                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                               The 80-6 mutant (AAW01020) of the bcl-2 oncogene product (AAW01018) lacks amino acids 80-86 of the native protein. This and other Bcl-2 mutants (see also AAW01019-21) were used in a two hybrid assay to examine the interactions between Bcl-2 and novel apoptosis regulating proteins Nipl, Nip2 and Nip3 (AAW00997-99). 2 Motifs (AAW01003-04) on Bcl-2 were identified that are essential for interaction with the Nip proteins. These motifs show homology to motifs (AAW01005-06) identified on the adenovirus ElB 19K apoptosis-blocking protein (AAW01010).
                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Apoptosis-regulating protein; Bcl-2; oncogene; adenovirus E1B 19K protein; cell death; cancer immune disorder; diagnosis; therapy; BiplA; Bi
                                                                                                                                                                                                                                                                                                                                                                                               Nucleic acids encoding apoptosis regulating proteins - useful for diagnosing and treating immune disorders, malignancies, etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Chinnadurai G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21-MAR-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21-MAR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EP733706-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Nip2; Nip3
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                AGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVL
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                                            APGSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTAR----GCFATVVEELFR
                                                                                                KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGFFSSQPGHTPHPAASRDPVARTSPLQTPA
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46;
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                                                                                                                                                                  Similarity
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                                                                                                                                                                                                                                                                                                                                                                       Page 34-35;
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                                                                   -VLLRLGDELEQIRPSVYRNVARQLHI-PLQSEPVVTDAFLAVAGHIFS 116
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bred. No. 1.4e-08;
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therapy; Bip1A; Bip13; Bip5; NIp1;
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133 DGVNWGRIVAFFEEGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWDAFV 192
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Дb

Search completed: April 29, 2003, 11:23:21 Job time : $34.5339 \ \text{secs}$

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Compugen Ltd.
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Q9ul32 homo sapien
Q9umx3 homo sapien
Q9umx3 homo sapien
Q91812 gallus gall
Q91915 gallus gall
Q90gy3 drosophila
Q9v612 drosophila
Q9v612 drosophila
Q9v612 drosophila
Q9v612 drosophila
Q9v3r6 drosophila
Q93r6 cricetulus
Q93r6 brachydanio
Q99n36 mus musculu
Q33843 mus musculu
Q90z98 brachydanio
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ALIGNMENTS

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RESULT 1
088857
ID 0888
AC 01-J
DF 01-N
DT 01-
    Query Match
                                                                                                                                               EMBL; AF051093; AAC61928.1; -.
InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; BcL2_family.
Pfam; PF00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                                                                                                                Hsu S.Y., Hsueh A.J.W.;

"A splitting variant of the Bcl-2 member Bok with a truncated BH3 domain induces apoptosis without dimerization with anti-apoptotic Bcl-2 proteins.";

2 proteins.";

Submitted (FEB-1998) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                O88857 PRELIMINARY; PRT; 170 AA.
088857;
01-NOV-1998 (TrEMBLrel. 08, Created)
01-NOV-1998 (TrEMBLrel. 08, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
EC1-2-related ovarian killer protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                reproductive tissues and heterodimerizes with selective bcl-2 family members.";
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Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae;
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"Bok is a pro-apoptotic bcl-2 protein with restricted e
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
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                                                                         PS50062; BCL2_FAMILY;
170 AA; 18729 MW;
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    100.0%; Score 878;
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15E54361F448CF16 CRC64;
DB 11; Length 170;
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Submitted (DEC-1997) to the EMBL/GenBank/DDBJ databases.

R EMBL; AF027954; AAB87418.1; -.

R EMBL; AF027707; AAC53582.1; -.

R MGD; MGI:1858494; Bok.

InterPro; IPR00712; Bcl2_BH.

InterPro; IPR00715; BCL2_family.

R InterPro; IPR002475; BCL2_family.

R Pfam; PF00452; Bcl-2; 1.

PF SMATT; SM00337; BCL; 1.

PROSITE: PS50062; BCL2_FAMILY; 1.

PROSITE: PS50062; BCL2_FAMILY; 1.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                    SPECIES-Mouse;
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SPECIES=Rat; STRAIN=SPRAGUE-DAWLEY; TISSUE-OVARY, TESTIS, AND UTERUS; SPECIES=Rat; STRAIN=SPRAGUE-DAWLEY; TISSUE-OVARY, TESTIS, AND UTERUS; MEDLINE-980024143; PubMed=9356461;
HSu S.Y., Kaipia A., McGee E., Lomeli M., Hsueh A.J.W.;
"Bok Is a pro-apoptotic Bcl-2 protein with restricted expression in reproductive tissues and heterodimerizes with selective anti-apoptotic Bcl-2 family members.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
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     WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
                                     GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT
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                                                                                                                                                                          Score 846.5; DB 11
Pred. No. 1.8e-71;
0; Mismatches 0;
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Sciurognathi; Muridae;
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Query Match
Best Local S
Matches 167
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"CDNA cloning of the human Bok gene
Submitted (SEP-1998) to the EMBL/Ge
EMBL; AF089746; AAF09129.1;
InterPro; IPR002475; BC12_BH.
InterPro; IPR002475; BC12_Emily.
Pfam; PF00452; BC1-2; 1.
SMART; SM00337; BCL; 1.
PROSITE; PS50062; BCL2_FAMILY; 1.
SEQUENCE 213 AA; 23540 MW; 5950
                                     Homo sapiens (Human).
Eukaryota; Metazoa; Chemanmalia; Eutheria; Properties of the NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q9UL32;
01-MAY-2000
01-MAY-2000
01-JUN-2002
                                                                                                                                09UMX3;
01-MAY 2000 (TrEMBLrel. 13, Created)
01-MAY 2000 (TrEMBLrel. 13, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
BCL-2-related ovarian killer protein (Similar to BC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens (Human).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
MCBI_TaxID=9606;
SEQUENCE FROM N.A. Zhang H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bcl-2 related ovarian killer.
                                                                                                            protein-like).
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                                                                                                                       protein-like-PENDING)
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2 (TrEMBLrel.
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                                                      Chordata;
Primates;
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Pred. No. 8.6e
0; Mismatches
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Catarrhini;
                                                      Craniata; V
Catarrhini;
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d.6e-70;
3;
                                                                  Vertebrata;
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Best Local Similarity
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Gallus (gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Eukaryota; Metazoa; Neognathae; Galliformes; Phasiani
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q91812;
Q91812;
                                                                  PROSITE;
SEQUENCE
                                                                                         InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; Bc12_family.
Pfam; PF00452; Bc12_; 1.
SMART; SM00337; BCL; 1.
PROSSITE: PSCACE
                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
BC1-2-related ovarian killer protein.
                                                                                                                                                                                          MEDLINE=20487164; PubMed=11034351;
Zhang H., Holzgreve W., De Geyter C.;
"Evolutionarily conserved Bok proteins
FEBS Lett. 480:311-313(2000).
EMBL, AF275944; AAF81282.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Gene expression of a protein.";
                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; AF174487; AAD51719 1; -.
EMBL; BC006203; AAH05203.1; -.
EMBL; BC017214; AAH17214.1; -.
InterPro; IPR000712; BC12_BH.
InterPro; IPR002475; BC12_family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Strausberg
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                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=9031;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PROSITE; PS50062; |
SEQUENCE 212 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Strausberg R
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mes 162; Conserv
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                                                                  PS50062; I
213 AA;
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                                                                  BCL2_FAMILY;
; 23619 MW;
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; 23280 MW;
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76.18;
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Pred. No. 3.2e-67;
Prematches 4;
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  Score 699.5; DB Pred. No. 1e-57;
                                                                  B3AF7049F25442E3 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   053ED605FF8EF5B2 CRC64;
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                    13;
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                    Length
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DT 01
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  Q8T8Y5;
Q8T8Y5;
01-JUN-2002
01-JUN-2002
01-JUN-2002
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mills E.M., Johnson A.L., Bridgham J.T.; "Characterization and Expression of Bok in the Hen Ovary."; Submitted (JUL-2000) to the EMBL/GenBank/DDBJ databases. EMBL, AF290888; AAGO1182.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-MAR-2001 (TYEMBLEEL. 16, Created)
01-MAR-2001 (TYEMBLEEL. 16, Last sequence update)
01-JUN-2002 (TYEMBLEEL. 21, Last annotation update)
Bc1-2-related ovarian killer protein.
Bc1lus gallus (Chicken).
Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; BCL2_family.
Pfam; PF00452; Bc1-2; 1.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                          GGKLAEVSAILLRLGDELEYIRPNVYRNIARQLNISLHSETVVTDAFLAVAAQIFTAGIT
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                                                                                            PRELIMINARY;
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; 23658 MW; 07CC06BEBD7311EC CRC64;
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Pred. No. 3.7e-57;
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on update)
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Best Local S
Matches 56
                                                                                                                                                                               SEQUENCE FKOM N.A.

MEDLINE-20153510; PubMed-10684252;

Colussi P.A., Quinn L.M., Huang D.C., Coombe Richardson H., Kumar S.;

"Debcl, a proapoptotic bcl-2 homologue, is a "Debcl, a proapoptotic bcl-2 homologue, is a "Debcl, a malancaster cell death machinery.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Stapleton M., Brokstein P., Hong L., Agbayani A., Carlson J., Champe M., Chavez C., Dorsett V., Dresnek D., Farfan D., Frische D., George R., Gonzalez M., Guarin H., Kronmiller B., Li P., Liac Miranda A., Mungall C.J., Nunco J., Pacleb J., Paragas V., Pa Patel S., Phouanenayong S., Wan K., Yu C., Lewis S.E., Rubin
                                                                     InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; BCL2_family.
Pfam; PF004452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta; Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Musc
Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                     01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last seq
01-JUN-2002 (TrEMBLrel. 21, Last ann
BCL-2-like protein BUFFY (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Drosophila melanogaster (Fruit fly).

Drosophila melanogaster (Fruit fly).

Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;

Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;

Ephydroidea; Drosophilidae; Drosophila.
                                                                                                              FlyBase; FBgn0040491; Buffy. InterPro; IPR000712; Bcl2_BH.
                                                                                                                                          EMBL; AF237864; AAF44120.1; HSSP; Q07817; 1MAZ.
                                                                                                                                                                      Drosophila melanogaster cell death J. Cell Biol. 148:703-714(2000).
                                                                                                                                                                                                                                                                                                                                            Drosophila melanogaster (Fruit fly)
                                                                                                                                                                                                                                                                                                                                                            BC1-2-like protein BUFFY OR CG8238.
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EMBL; AYO
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                                                                                                                                                                                                                                                                                                                                                                                                                                  Q9NGX3;
                                                                                                                                                                                                                                                                                                                                                                                                                                             Q9NGX3
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                                                      PROSITE; PS50062; BCL2_FAMILY;
                                                                                                                                                                                                                                                                                       VCBI_TaxID=7227;
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A; 33379 MW;
                            34909 MW;
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Last annotation updat
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                            775A41FDDD5B678E CRC64;
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                                                                                                                                                                                                                                                                                                                 Brachycera; Muscomorpha
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A Lasko P. Lei Y. Levitsky A.A., Li J., Li Z., Liang Y., Lin X., A Liu X., Mattei B., McIntosh T.C., McLeod M.P., McPherson D., Ia Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A., A Mount S.M., Moy M., Murphy B., Murphy L., Muzny D.M., Nelson D.L., A Nelson D.R., Nelson K.A., Nixon K., Nusskern D.R., Pacleb J.M., A Nelson D.R., Nelson K.S., Pan S., Pollard J., Pacleb J.M., A Palazzolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G., A Palazzolo M., Pittman G.S., Pan S., Pollard J., Pacleb J.M., A Palazzolo M., Pittman G.S., Pan S., Pollard J., Pacleb J.M., A Palazzolo M., Pittman G.S., Pan S., Pollard J., Pacleb J.M., Shue B.C., Siden-Kiamos I., Simpson M., Skupski M.P., Smith T., A Spier E., Spradling A.C., Stapleton M., Strong R., Sun E., Spier E., Spradling A.C., Stapleton M., Strong R., Sun E., Spier E., Spradling A.C., Turner R., Venter E., Wang A.H., Wang X., A Wang Z.-Y., Wassarman D.A., Weinstock G.M., Weissenbach J., Wang Z.-Y., Wassarman D.A., Weinstock G.M., Weissenbach J., Walliams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A., Walliams S.M., Woodage T., Worley K.C., Wu D., Yang G., Zheng L., Yang Y., Yeh R.-F., Zaveri J.S., Zhan M., Zhang G., Zheng L.,
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A George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
A George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
A George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
A George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
A Balton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
A Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
A Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
A Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
A Wan K.H., Doyle A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
A Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
A Berkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
A Burtis K.C., Busam D.A., Butler H., Cadleu E., Center A., Chandra I.,
Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
A Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Dietz S.M.,
Codson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
Dorlon K.J., Evangelista C.C., Ferraz C., Ferriera S., Fleischmann W.,
Charles F. G., Schert G. M., Carran C., Gelbart G.M., Classer K.
                                                                                                                                                                                                                                                          Fosler C., Gabrielian A.E., Garg N.S., Gelbart W.M., Glasser K., Glodek A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M., Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J., Hostin D., Houston K.A., Howland T.J., Wei M.-H., Ibegwam C., Jalali M., Kalush F., Karpen G.H., Ke Z., Kennison J.A., Ketchum K.J., Klimel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z., Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin, X., Mattei B., McIntosh T.C., McLeod M.P., McPherson D., Merkulov G., Milshina N.V., Moharry C., McLeod M.P., McPherson D.,
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01-MAY-2000
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Eukaryota; Metazoa; Arthropoda; Tracheata; He
Pterygota; Neoptera; Endopterygota; Diptera;
Ephydroidea; Drosophilidae; Drosophila.
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Celniker S.E., Holt R.A.,
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Pred. No. 3.
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a; Brachycera; Musc
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                                                                                                                                                                                     M.G.,
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InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; BCL2_family.
Pfam; PF00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
PROSITE; PS50062; BCL2_FAMILY; 1.
SEQUENCE 247 AA; 27466 MW; A2C4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-MAY-2000
01-OCT-2000
01-JUN-2002
                                                         Zhang H.,
Reed J.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Miura M.; "Drob-1, a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
101-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Death EXECUTIONER BCL-2 homolog protein (PROAPOPTOTIC BCL-2 homolog
DEBCL) (BCL-2 family member protein) (BCL-2 ORTHOLOG DBORG-1)
DEBCL OR DBORG1 OR BOK OR BCL2 OR BG1 OR ROB-1 OR CG12397.
DEBCL OR DBORG1 OR BOK OR BCL2 OR BG1 OR ROB-1 OR CG12397.
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                                                                                                                                                                      "Debcl, a proapoptotic Bcl-2 homologue, is a Drosophila melanogaster cell death machinery, J. Cell Biol. 148:703-714(2000).
                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
MEDLINE-20153510; PubMed-10684252;
MEDLINE-20153510; PubMed-10684252;
                                                                                                                                                                                                                                                                                                                                                                                                             Igakı T.,
Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                     Igaki
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"Drosophila pro-apoptotic I conservation of cell death
                                                                                 SEQUENCE FROM N. Zhang H., Huang
                                                                                                                                                                                                                                                                 Richardson H., Kumar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REVISIONS
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Myers E.W.,
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                                                                                                                                                                                                                                                                                                                                                                                                             Inohara N., Sawamoto K.,
to the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Inohara N.,
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Rubin
   Bcl-2/Bax homolog reveals evolutionary
n mechanisms.";
                                                                                    Matsuyama
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97:662-667(2000).
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                                                                                    Hammock B.,
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                                                                                       Godzik A.,
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RA Adams M.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D., A Adams M.D., Celniker S.E., Hilt R.M., Hoskins R.A., Galle R.F., A Adams M.D., Celniker S.E., Hilt R.M., Hoskins R.A., Galle R.F., Ra Bandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Ffeiffer B.D., RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Ffeiffer B.D., RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Ffeiffer B.D., RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Ffeiffer B.D., RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Ffeiffer B.D., RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Ffeiffer B.D., RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Ffeiffer B.D., Ra Brandon R.C., Bascendale J., Bayraktaroglu L., Beasley E.M., Ra Ballew R.M., Bascendale J., Bayraktaroglu L., Beasley E.M., Ra Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S., Ra Borkova D., Botchan M.R., Bouck J., Brokstein P., Borttier P., Ra Borkova D., Botchan M.R., Bouck J., Brokstein P., Borttier P., Candra I., Ra Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S., Ra Gebart K.C., Busam D.A., Butler H., Cadleu E., Center A., Chandra I., Ra Godson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P., Ra Harris M., Glasser K., Ra Glodek A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M., Ra Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J., And Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J., And Harris N.L., Mattel B., McIntosh T.C., McLeod M.-H., McMara C., Lii Z., Liang Y., Lii X., Mattel B., McIntosh T.C., McLeod M.-H., McPherson D.L., Ra Kimmel B.E., Kodira C.D., Kraft C., Kravitz J., Moshrefi A., Ra Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A., Ra Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A., Ra Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A., Ra Ra Herner K., Patal M., Welson K.A., Walssen D.R., Patleb J.M., Nelson D.L., Ra Mander R., Venter E., Hang A.H., Wang X., Ra Mang X.-Y., Massarman D.A
                                                                                                                                                                                                                                                                                                                          Zhou L., Sur
"Potential !
                                                                       EMBL;
                                                                                                     EMBL;
                                                                                                                                                     EMBL;
                                                                                                                                                                                       EMBL;
                                                   EMBL; AF244352; AAF44714.1; FlyBase; FBgn0029131; debcl
                                                                                                                                       EMBL;
                                                                                                                                                                                                                       Brachmann C.B., Jassim O.W., Wachsmuth B.D., "dBorg-1, a Drosophila Bcl-2 family member t apportotic response to UV-irradiation.";
                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A. Kurada P., White K.; "Putative Drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         J. Biol. Chem. [5]
                                                                                                                                                                        EMBL;
                                                                                                                                                                                                        Submitted (MAR-2000)
                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                protein
                     InterPro;
                                                                                                                                                                                                                                                                          SEQUENCE FROM N.
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                                     InterPro;
                                                                                                                                   AF149798; AAF26841.1;
AF178430; AAF26289.1;
AF228044; AAF89165.1;
                                                                                                                                                                                   Ltea (MAR-2000) to the EMBL/GenBank/DDBJ AB032430; BAA89603.2; -.
                                                                                     AE003789; AAF57365.1;
AF216752; AAF25955.1;
AF222004; AAF44324.1;
                                                                                                                                                                                                                                                                                                                                            Steller H.;
al Drosophila homologue
                   IPR002475;
                                 IPR000712;
                                                                                                                                                                                                                                                                                                            (JAN-2000)
                                                                                                                                                                                                                                                                                                                                                                                                                 (DEC-1999)
                                   Bcl2_BH
BCL2_family.
Znf_C2H2.
                                                                                                                                                                                                                                                                                                            to the EMBL/GenBank/DDBJ
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
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PROSITE; PS50157; ZINC_FINGER_C2H2_2;
DNA-binding; Zinc-finger.
CONFLICT 1 86 MISSING
CONFLICT 215 215 I -> V (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Drosophila melanogaster (Fruit fly).

Bukaryota; Metazoa; Arthropoda; Encheata; Hexapoda; Insecta;

Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;

Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q95U83;
01-DEC-2001 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam; PF00452; Bcl-2; SMART; SM00337; BCL; 1
                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF00452; Bcl-2; 1.
SMART; SM00337; BCL; 1.
SEQUENCE 317 AA; 34649
                                                                                                                                                                                                                                                                                                                                                                                                                                         FlyBase; FBgn0029131; debcl.
InterPro; IPR000712; Bcl2_BH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A. STRAIN-BERKELEY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEBCL OR CG12397
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  216
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  DCVRQGHFDYLQCLIDGLAEIIGRPGLLADRQRRMVG
                                             DCVRQAQPAMVHALVDCLGEFVRK--TLATWLRRRGG
                                                                                        MHPRVYTNISRQLSRAPFGELEDSDMAPMLLNLVAKDLFRSSITWGKIISIFAVCGGFAI
                                                                                                                                                                                    DIINGGKCLCGQYIRARLRRAGVLNRKVTQRLRNILDPGSSHVVYEVFPALNSMGEELER
                                                                                                                                                                                                                                 ELVAQAKALGREYVHARLLRAG-LSWSAPER------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW 129
                                                                                                                                        -----ASPAPGGRLAE----
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                                                                                                                                                                                                                                                                               43; Conserv
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217
300 AA;
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28.2%;
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27.4%;
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                                                                                                                                                                                                                                                                            Score 142; DB
Pred. No. 2.2e
L8; Mismatches
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Pred. No. 2.
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R (IN REF. 4).
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                                                                                                                                      -VCTVLLRLGITWGKVVSLYSVAAGLAV 93
                                                                                                                                                                                                                                                                                                DB 5;
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Ч.,
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RESULT 13
Q919N4
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Q923R6
RP OC OCC
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"Construction of a robust CHV con-
Submitted (JUL-2001) to the EMBL/Gen
EMBL; AF404339; AAK92201.1; ...
EMBL; AF704339; AAK92201.1; ...
InterPro; IPR003093; Bc12_BH4.
R InterPro; IPR003093; Bc12_family.
R InterPro; IPR004725; Bc12_reg.
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Best Local
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PROSITE; PS50062; BCL2_FAMILY; 1.

PROSITE; PS01080; BH1; UNKNOWN_1.

PROSITE; PS01258; BH2; UNKNOWN_1.

PROSITE; PS01259; BH3; UNKNOWN_1.

PROSITE; PS01259; BH4_1; UNKNOWN_1.

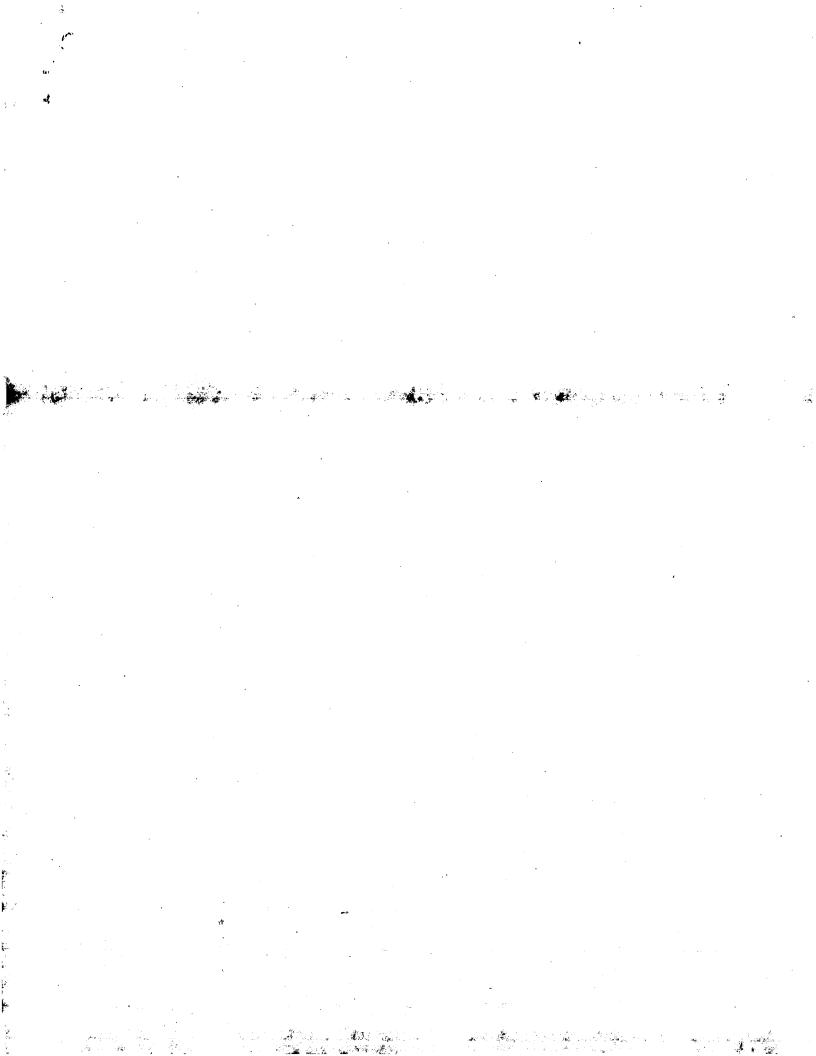
PROSITE; PS01260; BH4_1; UNKNOWN_1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q923R6;
Q923R6;
01-DEC-2001
                                                                                                                                       Q919N4;
                                        Brachydanio rerio (Zebrafish)
Eukaryota; Metazoa; Chordata;
Actinopterygii; Neopterygii;
                                 Cyprinidae;
                                                                                                      01-OCT-2000
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cricetulus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cricetulus longicaudatus (Long-tailed hamster) (Chinese hamster)
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B-cell lymphoma protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1.
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                                                                                                                                                                                                                                                                                                                                                                              28 VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG----
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                                                                                                                                                                                                                                                                                                         VHRDMAARTSPLRPIVATTGPTLSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120
                                                                                                                                                                                                              HLHTWIQDNGGWDAFVELYGPSVRPLFDFSWL
                                                                                                                                                                                                                                   TLATWLRRRGGWTDVLKCV-VSTDPGFRSHWL
                                                                                                                                                                                                                                                          FTARGRFATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNR 180
                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                -GRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRK 117
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                                                                                                    (TrEMBLrel. (TrEMBLrel. (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  236 AA;
                                 Danio.
                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                    PRELIMINARY;
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                                           n) (Zebra danio).
h; Craniata; Vert
: Teleostei; Osta
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Pred. No. 0.000
25; Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                   BEDF052EF32CA8B8 CRC64;
                                                                                                    sequence update) annotation update)
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                                           Vertebrata; El Ostariophysi;
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56;
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on update)
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                                                        Euteleostomi;
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SEQUENCE FROM N.A

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Best Local S
Matches 34
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Q99N36;
01-JUN-2001 (TrEMBLrel. 1
01-JUN-2001 (TrEMBLrel. 1
01-JUN-2002 (TrEMBLrel. 2
                                                                                                                                                                                                                                                                                                                                                                                             PROSITE;
PROSITE;
PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (MAR-1999) to the EMBL/GenBank/DDBJ databases EMBL; AF133279; AAK15454.1; ... EMBL; AF133281; AAK15454.1; JOINED. HSSP; P53563; 1AF3; InterPro; IPR000712; Bc12_BH. InterPro; IPR000712; Bc12_BH. EMBLY 
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                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Novel cDNA structure and genomic organization of apoptosis gene Bcl x-gamma.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B-cell leukemia/lymphoma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Interpro; IPR000711; Bc12_BH.
Interpro; IPR002475; BCL2_family.
Pfam; PF00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
PROSITE; PS50062; BCL2_FAMILY; 1.
SEQUENCE 192 AA; 21401 MW; 8A71A630A56FDC32 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN=129/SVJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=20373792; PubMed=10917738;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Inohara N., Nunez G.; "Genes with homology to mammalian apoptosis regulators identified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ang X.-F.,
   126
                                                                    109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               118
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   RGGW-----
                                                                                                                        EVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HVINWIREQGGW----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TLATWLRRRGGWTDVLKCVVSTDPGFRSHWLVATLCSFGRFL 159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PTQDVFIRVAREIFSDGKFNWGRVVALFYFACRLVIKAISTRVPDIIRTIISWTMSYIQE
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                                                             QVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATYLNDHLEPWIQE 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EVCTVLLRLG-----
                                                                                                                                                                                         Similarity 25.0
25; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                      PS50062; BCL2_FAMILY; 1.
PS01080; BH1; 1.
PS01259; BH3; 1.
                                                                                                                                                                                                                                                                                                                               219 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Cantor H.;
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-TDVLKCVVSTDPGFRSH---
                                                                                                                                                                                                                                                                                                                               24224 MW;
                                                                                                                                                                                                                           12.5%;
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21.0%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         . 17, Created)
. 17, Last sequ
. 21, Last anno
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                                                                                                                                                                                             17;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -DGIRSYFGTPTWQTVGVFL 179
                                                                                                                                                                                                                        Score 109.5; DB Pred. No. 0.016;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 109.5;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
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                                                                                                                                                                                                                                                                                                                               EB352EC4CFAA6AF5 CRC64;
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-WLVAT 151
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                                                                                                                                                                                                                                                          DB 11;
                                                                                                                                                                                                43;
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                                                                                                                                                                                                                                                       Length 219;
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035843
Search completed: April Job time: 22.7493 secs
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Best Local
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01-JAN-1998 (
01-JUN-2002 (
                                                                                                                                                                                                                                                                                                                                                                                                                        PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SMART; SM00337; BC
SMART; SM00265; BH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1
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Immunity 7:629-639(1997).
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MEDLINE=98051053; PubMed=9390687,
Yang X.-F., Weber G.F., Cantor H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Mammalia; Eutheria; NCBI_TaxID=10090;
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MGD; MGI:88139; BC
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
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                                                                                                                                                                                               QVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATYLNDHLEPWIQE 184
                                                                                              NGGWGVSGGTPLRSVFRRLVQV-PGVAEHVCDPSLWEVET
                                                                                                                                             RGGW-----
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PS50063; BH4_2; 1.
235 AA; 26122 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PS01259; BH3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PS01080; BH1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IPR000712; Bc12_BH.
IPR003093; Bc12_BH4.
IPR002475; BCL2_family.
IPR004725; Bc12_reg.
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Rodentia;
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Last annotation update)
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Gapop 10.0 , Gapext 0
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SwissProt_40:*
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
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BAXA_MOUSE
BAXA_RAT
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BAXD_HUMAN
BAXA_BOVIN
BAXA_HUMAN
BFILL_MOUSE
SSDH_HUMAN
BFILL_HUMAN
BFILL_HUMAN
FILL_PSEPU
BFILL_HUMAN
RHO_MCIE
BFIPO_MOUSE
IRR_MOUSE
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BAXB_HUMAN
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Q63630
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MEDLINB-95059917; PROM N.A. MEDLINB-95059917; pubMed-7960891; Castren E., Ohga Y., Berzaghi M.P., Tzimagiorgis G. Lindholm D.; bc1-2 messenger RNA is localized in neurons of the adult rat brain."; Neuroscience 61:165-177(1994)	SEQUENCE FROM N SEQUENCE Brain; MEDLINE=9419301 Sato T., Irie & "Cloning and se Gene 140:291-25 [2] SEQUENCE FROM N STRAIN=Sprague- MEDLINE=5512946 MEDLINE=5512946 Tilly J.L., Til "Expression of ovary: equine of cell apoptosis bcl-2 and bcl-> Endocrinology 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	74.5 74.5 73.5 73.5 72.5 72.5 72.5 72.7 72.7 72.7 72.7 72
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rons of the developing and variety of cell systems atopoietic and neural cells. the mitochondrial membrane a feedback loop system with either by preventing the ochondria and/or by binding to F-1). F-1). BAK and X requires intact BHI and BH2 poptotic activity (By similarity). F-1 and RAF-1 (By similarity). drial membrane, intracellular the endoplasmic reticulum. arrety of tissues, with es. In the adult brain, lls of the olfactory bulb, pecampus, ponting nuclei, pendymai cells. In prenatal	he ration in A.L.; hally in addinhib bax and pid leve	lurida	
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PROSITE; PS01259;
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InterPro;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1.
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                                                                                                                                                                                                                                                                                                                                                                              MOD_RES
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61
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PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH4) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH4) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle. In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   brain, expression is higher and localized and in the cortical plate.

DOMAIN: The BH4 domain is required for antifor interaction with RAF-1 (By similarity).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  European
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PTM: Phosphorylation/dephosphorylation on Ser-70 regulates
                                                                                                                                VAQAKALG-----REYVHARLLRAGLSW-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SWISS-PROT entry is copyright. It is produced through
een the Swiss Institute of Bioinformatics and the EN
European Bioinformatics Institute. There are no restr
VHRDTAARTSPLRPLVANAGPALSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                                                                                    MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDTGDEDSAPLRAAPTPGIFSFQPESNRTPA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             s requires a license agreement (S
an email to license@isb-sib.ch).
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IPR003093; Bcl2_BH4.
IPR004725; Bcl2_reg
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AAA77687.1; -.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mitochondrion;
                                                                                                                                                                              25;
                                                                                                                                                                                                                                                              POTENTIAL.

CLEAVAGE (BY CASPASES) (BY PHOSPHORVLATION (BY PKC) (I A .> R (IN REF. 2).

E -> G (IN REF. 1).

S -> Y (IN REF. 2).

L -> Q (IN REF. 2).

E7688CB9071A872A CRC64;
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5; Mismatches
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nes 57;
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PKC) (BY SIMILARITY).
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Yin
"BH1
                                                    programmed cell death.";
Nature 348:334-336(1990)
[7]
                                                                   Hockenbery D., Nunez G., marramembrane "BC1-2 is an inner mitochondrial membrane cell death.";
                                                                                                                                                   "Franaka S.; Louie D.C., Kant J.A., Reed J.
"Frequent incidence of somatic mutations oncogenes of non-Hodgkin's lymphomas.";
Blood 79:229-237(1992).
                                                                                                                                                                                                                                      "Alternative promoters and exons, somatic mutation of the Bc1-2-Ig fusion gene in lymphoma."; EMBO J. 7:123-131(1988).
                                                                                                                                                                                                                                                                                                                                    "Cleary M.L., Smith S.D., Sklar J.;
"Cloning and structural analysis of cDNAs for bcl-2 and 2/immunoglobulin transcript resulting from the t(14;18) translocation.";
Cell 47:19-28(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           P10415; P10416; Q16197; Q13842;
01-MAR-1989 (Rel. 10, Created)
01-APR-1993 (Rel. 25, Last sequence up
15-JUN-2002 (Rel. 41, Last annotation
  MUTAGENESIS,
MEDLINE=94239528; PubMed=8183370;
Yin X.-M., Oltvai Z.N., Korsmeyer
"BH1 and BH2 domains of Bc1-2 are
                                                                                                              SUBCELLULAR LOCATION MEDLINE=91066924; Pur
                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
MEDLINE=88196071; P
Seto M., Jaeger U.,
                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A. (ISOFORM ALPHA MEDLINE-87002488; Pubmed-2875799;
                                                                                                                                                                                                                                                                                                                                                                                                                                     in a variety of tissues including lymphoid adult and embryo.";
Nucleic Acids Res. 20:4187-4192(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               bcl-2,
                                                                                                                                                                                                                SEQUENCE OF 1-131
                                                                                                                                                                                                                                                                            Goldman P.,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-86259760;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        iguchi Y., Ewert D.L., Tsujimoto Y.;
Isolation and characterization of t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  e structure, transcripts, and protein involved in human follicular lymphoma d. Sci. U.S.A. 83:5214-5218(1986).
                                                                                                                                                                                                                                                                                    PubMed=2834197;
, Hockett R.D., G
                                                                                                                                                                                                  FROM N.A. (ISOF PubMed=1339299;
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PubMed-1508712;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ueno K., Hardwick J.M.;
"Conversion of Bcl-2 to a Bax-like death effector by caspases.";
Science 278:1966-1988(1997).
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                                                                                                                                                                                                                                                                                                                                                             regions.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.

SIMILARITY: BELONGS: TO THE BCL-2 FAMILY.

SIMILARITY: BELONGS: TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        activity, causes the release of cytochrome c in promoting further caspase activity.

DISEASE: Involved in follicular lymphoma (FL) (a II chronic lymphatic leukemia) by a chromosomal (14:18)(q32:q21) which involves Bcl2 and immuno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1. SUBCELULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum. ALTERNATIVE PRODUCTS: 2 isoforms; alpha (shown here) and beta; are produced by alternative splicing.

TISSUE SPECIFICITY: Expressed in a variety of tissues.
                                                                                                                                                                                                                          ween the Swiss Institute of Bioinformatics Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle. In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases. Dephosphorylated by protein lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol
                                                                                                                                                                                     SWISS-PROT entry is copyright. It is produced through een the Swiss Institute of Bioinformatics and the EM European Bloinformatics Institute. There are no restr by non-profit institutions as long as its content
                                                                                                                                                                                                                                                                                                                                                   WWW-"http://www.infobiogen.fr/services/chromcancer/Genes/BCL2ID49.html"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    including factor-dependent lymphohematopoletic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding to the apoptosis-activating factor (APAF-1).
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                                                                                          s requires a license agreement (S an email to license@isb-sib.ch).
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Ll. Biol. 19:8469-8478(1999)
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   AAA51813.1;
AAA51814.1;
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                                                                                                                            (See http://www.isb-sib.ch/announce/
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PROSITE; PS01080; BH1; 1.
PROSITE; PS01288; BH2; 1.
PROSITE; PS01258; BH2; 1.
PROSITE; PS01259; BH3; 1.
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PIR; D37332; D37332.
HSSP; Q07817; 1MAZ.
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                                                                                                                                                                                                                                                                                                                                                                                                DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                           DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                     Proto-oncogene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pram;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR003093; InterPro; IPR004725;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR002475;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MIM; 151430;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      [nterPro; IPR0007]
                 71 LLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWT
                                                         62
                                                                          17
                                                                                            37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BL; M14745; AAA35591.1;
BL; X06487; CAA29778.1;
BL; X766487; CAA29178.11.1; I
R; A29409; TYHUA1.
R; B29409; TYHUB1.
R; A24428; TYHUBC.
                                                                                                                                                                                                                                                                                                                                                    RES
                                                                                           EYVHARLLRAGLSW-----SAPERASPAPG-----
LFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWD
                                     APGAAAGPALSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTARGRFATVVEE
                                                                         KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PF00452; Bcl-2; PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SM00337; BCL;
SM00265; BH4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HGNC:990; BCL2.
                                                                                                              40;
                                                                                                                       Similarity
                                                                                                                                                 48
59
117
129
239
                                                                                                              Conservative
                                                                                                                                                                                                          188
                                                                                                                                                                                                                            34
64
145
                                                                                                                                                                                                                                                                                                                                                                     10
93
136
187
212
                                                                                                                                                                                                                                                                                                                                           196
                                                                                                                                                                                                                                                                           93
                                                                                                                                                                                                                                                                                                       59
                                                                                                                                                                                                                                                                                                                                                                                                                   Disease
                                                                                                                                                                                                                                                                                                                                                                                                                          ; Apoptosis; Alter Phosphorylation;
                                                                                                                                                   AA
                                                                                                                                                                                                                             34
64
145
                                                                                                                                                                                                          188
                                                                                                                                                                                                                                                                                                                                          239
                                                                                                                                                                                                                                                                           93
                                                                                                                                                                                                                                                                                                       59
                                                                                                                                                   26266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bcl2_BH4.
Bcl2_reg.
                                                                                                                        14.8%;
19.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BCL2_family
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BC12_BH
                                                                                                                                                                                                                                                                                                                                                                                                                   mutation
                                                                                                                                                    WW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ALT_SEQ
                                                                                                              25;
                                                                                                                                                                                                                                                                                                                                                                                                                           Alternative splicing; Transmembrane; tion; Chromosomal translocation;
                                                                                                                       Score 130;
Pred. No. 1
                                                                                                                                                                                        LOSS (
W->A:
LOSS (
                                                                                                                                                                                                                            D->A:
D->A:
G->A:
                                                                                                                                                                                P ->
                                                                                                                                                                                                                                                                          /FTId=VAR_000828.
V -> I (IN NON-HODGKINS-LYMPHOMA;
                                                                                                                                                                                                                                                                                                                                                 POTENTIAL.
CLEAVAGE (BY CASPASE-3).
PHOSPHORYLATION (BY PKC) (BY SIMILARITY).
                                                                                                                                                                                                                                                                  MUTATION).
                                                                                                                                                                                                                                                                                                                                         DAFVELYGPSMRPLFDFSWLSLKTLLSLALVGACITLGAYL
                                                                                                                                                                                                                                                        /FTId=VAR_000829
                                                                                                                                                                                                                                                                                                                /FTId=VAR_000827
                                                                                                                                                   3C49F2B714DC9CCB
                                                                                                              Mismatches
                                                                                                                                                           > T (IN REF. 3).
> R (IN REF. 3).
> C (IN REF. 4).
                                                                                                                                                                              OF ANTI-APOPTOTIC F (IN REF. 4). T (IN REF. 3).
                                                                                                                                                                                                                   OF ANTI-APOPTOTIC ACTIVITY.
                                                                                                                                                                                                                                                                                                      S (IN NON-HODGKINS-LYMPHOMA;
                                                                                                                                                                                                                            NO EFFECT ON CLEAVAGE NO HETERODIMERIZATION
                                                                                                                                                                                                                                                ABOLISHES
                                                                                                                                                                                               NO HETERODIMERIZATION WITH BAX AND DE ANTI-APOPTOTIC ACTIVITY.
                                                                                                                                                                                                                                                                                                                                 VGASGDVS (IN
                                                                                                       DB 1,
1.3e-05;
53;
                                                                                                                                                                                                                                               CLEAVAGE
                                                                                                                            Length 239;
                                                                                                                                                   CRC64;
                                                                                                                                                                                                                                                                                                                                 ISOFORM BETA).
                                                                                                              Indels
                                                                                                                                                                                                                                                ВΥ
                                                        -GRLAEVCTV
                                                                                                                                                                                                                            BY CASPASE-3
WITH BAX AND
                                                                                                                                                                                                                                                CASPASE-3
                                                                                                              88;
                                                                                                                                                                                                                                                                           SOMATIC
                                                                                                                                                                                                                                                                                                      SOMATIC
                                                                                                             Gaps
196
                  130
                                                       70
                                                                         76
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δõ

131

DVLKCV-VSTDPGFRSHWL-VATLCS

154

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                                                                                       use by non-profit institutions as long modified and this statement is not removed. entities requires a license agreement (See
                                                                                                                                                                                   This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Cho
Mammalia; Eutheria; Cei
Bovidae; Bovinae; Bos.
                                                                                                                                                                                                                       <del>-</del> -
                                                                                                                                                                                                                                                                                                                                                                          -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (MAR-1997)
-!- FUNCTION: Suppres
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
STRAIN-Holstein; TISSUE-Thymus;
                   EMBL; U92434; AAB53319.1; HSSP; Q07817; 1MAZ.
                                                                        or send an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       of Bcl-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BCL2_BOVIN
002718;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Bovine leukemia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Reyes R.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID-9913;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bos taurus (Bovine).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Apoptosis regulator Bcl-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           16-OCT-2001 (Rel.
15-JUN-2002 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             197
                                                                                                                                                                                              activity, causes the release of cytochrome c into the cytos promoting further caspase activity (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding to the apoptosis-activating factor (APAF-I) (By similarity). SUBUNIT: Forms homodimers, and heterodimers with BAX, BAA, BAK and BCl-x(L). Heterodimerization with BAX requires intact BHI and BH2
                                                                                                                                             s SWISS-PROT entry is copyright. It is produced through ween the Swiss Institute of Bioinformatics and the EN European Bioinformatics Institute. There are no restr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOMAIR: The BH4 domain is required for anti-apoptotic activity a for interaction with RRF-1 (By similarity).

PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1 (By similarity). SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum (By
                                                                                                                                                                                                                                                                                                                                                                                                                         occurs during the G2/M phase of the cell cycle (By similarity) the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           on Ser-70 by PKC is required for the anti-apoptosis activity and
                                                                                                                                                                                                                                                                                                                                                                  PTM: Proteolytically cleaved by caspases during apoptosis.
                                                                                                                                                                                                                                                                                                                                                                                         similarity)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            similarity).
                                                                                                                                                                                                                                                                                                                                                                                                        kinases. Dephosphorylated by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         s R.A., Cockerell G.L.;
ine leukemia virus associated-leukemogenesis is correlated suppression of programmed cell death and increased expressol-2.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AFVELYGPSMRPLFDFSWLSLKTLLS
                                                             requires a license agreement (an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  40, Created)
40, Last sequence up
41, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chordata; Crahiata; Vertebrata; Euteleostomi; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
BCL2_family
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            222
                                                                                                                                                                                                                                                                                                                                                                                                        protein phosphatase 2A (PP2A)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  229
                                                                                                                          There are no rest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A
                                                                                       http://www.isb-sib.ch/announce/
                                                                                                        Usage
                                                                                                            ρy
                                                                                                                                             restrictions
                                                                                                            and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     expression
                                                                                                                                                              EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         activity and
                                                                                                                                                                                                                                                                                                                                  cytosol
                                                                                                                                                                                   Ø
                                                                                                            for
                                                                                                                                                                  collaboration
L outstation -
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                                                                                                                                                                                                                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                BCL2_CRILO
                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR000
InterPro; IPR000
InterPro; IPR000
InterPro; IPR004
Pfam; PF00452; I
Pfam; PF02180; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN
DOMAIN
                                                                          TISSUE=Ovary;
MEDLINE=20431763; PubMed=10973819;
                                                                                                                                           Eukaryota;
Mammalia;
                                                                                                                                                   Cricetulus longicaudatus (Long-tailed hamster) (Chinese hamster) Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi
                                                                                                                                                                                                                          , 8VLL60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SMART; SM00337; BCL; SMART; SM00265; BH4;
                                                                                                                                 Cricetulus
                                                                                                                                                                               16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation updat
Apoptosis regulator Bcl-2.
                                                                                                                                                                                                                                      BCL2_CRILO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
MEDLINE=21092839;
Tomicic M.T., Kai
                   SEQUENCE FROM N.A.,
                                                 protein.
                                                                     Pomicic M.T.,
                                                                                                  SEQUENCE FROM N.A.
                                                                                                                     NCBI_TaxID=10030;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIGRFAMS;
                                                         Cloning and functional analysis of cDNA encoding the hamster Bcl-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                \poptosis;
                                                                                                                                                                                                                                                                                        197
                                                                                                                                                                                                                                                                                                            140
                                                                                                                                                                                                                                                                                                                                 137
                                                                                                                                                                                                                                                                                                                                                     81
                                                                                                                                                                                                                                                                                                                                                                         77
                                                                                                                                                                                                                                                                                                                                                                                             62
                                                                                                                                                                                                                                                                                                                                                                                                                17
                                                                                                                                                                                                                                                                                                                                                                                                                                   37 EYVHARLLRAGLSW-----SAPERASPAPG-----
                                                                                                                                                                                                                                                                                        RPLFDFSWL---
                                                                                                                                                                                                                                                                                                            DPGFRSHWLVATLCSFGRFLKAAFFLLL
                                                                                                                                                                                                                                                                                                                                                   VVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCV-VST
                                                                                                                                                                                                                                                                                                                                                                                                                KYIHYKLSQRGYEWDAGDAGAAPPGAAPAPGILSSQPGRTPAPSRTSPPPPPAAAAAGPAP
                                                                                                                                                                                                                                                                                                                                 IVAFFEFGGVMCVESVNREMSPLVDSIALWMTEYLNRHLHTWIQDNGGWDAFVELYGPSM
                                                                                                                                                                                                                                                                                                                                                                       SPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTARERFATVVEELFRDGVNWGR 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PS01080; BH1;
PS01258; BH2;
PS01259; BH3;
                                     Biophys.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PS50063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PS50062; BCL2_
                                                                                                                                         Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IPR000712; 1
IPR003093;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIGR00865;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IPR004725;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              63
229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                     Christmann M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bc1-2;
                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BH4_1; 1.
BH4_2; 1.
                                                                                                                                                                                                                                                                                        -----SLKALLSLAL
         PubMed=11181062
                                       Res.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 30
68
72
97
145
192
223
                                                                                                                                          Chordata;
Rodentia;
                   AND CLEAVAGE BY CASPASES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25099 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bcl2_BH.
Bcl2_BH4.
Bcl2_reg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                14.7%;
19.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     bc1-2;
                                       Commun. 275:899-903(2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FAMILY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mitochondrion; Phosphorylation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      25;
                                                                   Kaina
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 129;
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLEAVAGE (BY CASPASES) (BY SIMILARITY). PHOSPHORYLATION (BY PKC) (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BH2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       внз
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POLY-ALA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POLY-PRO
                                                                                                                                         Craniata; Ver
Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADIDDOAF98FFF11D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                        215
                                                                                                                                                                                                                                                                                                           167
                                                                     В.
                                                                                                                                                                                                                                      236
                                                                                                                                                                                            update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 1;
l.5e-05;
                                                                                                                                                                                                                                     ΑÃ
                                                                                                                                           Muridae;
                                                                                                                                                                                                                                                                                                                                                                                          -GRLAEVCTVLLRLGITWGK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                           Euteleostomi
Cricetinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                 196
                                                                                                                                                                                                                                                                                                                                                                                           80
                                                                                                                                                                                                                                                                                                                                                                                                                76
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Query Match
Best Local
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                                                                                                                                                                                                                                                                            SMART;
                                                                                                                                                                                                                                                                                                                                                                                                                                       the European Bioinformatics Institute. There use by non-profit institutions as long a modified and this statement is not removed. I entities requires a license agreement (See htt or send an email to license@isb-sib.ch).
                                                                                                                                                                                                   TIGRFAMS; TIGR00865; bcl-2; 1.
PROSITE; PS50062; BCL2 FAMILY;
PROSITE; PS01080; BH1; 1.
PROSITE; PS01258; BH2; 1.
PROSITE; PS01259; BH3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SW:
between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -
                                                                        SITE
                                                                                                                                                                                                                                                                                                        Pfam; PF00452; Bc1-2; Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                 HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Hamster Bcl-2
                                            SEQUENCE
                                                                                                    DOMAIN
                                                                                                                   DOMAIN
                                                                                                                                 DOMAIN
                                                                                                                                                DOMAIN
                                                                                                                                                             Apoptosis;
                                                                                                                                                                           PROSITE;
                                                                                                                                                                                         PROSITE;
                                                                                                                                                                                                                                                                                                                                                    InterPro;
                                                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR002475;
                                                                                     TRANSMEM
                                                                                                                                                                                                                                                                                                                                        InterPro;
                                                                                                                                                                                                                                                                                                                                                                    InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           the apoptosis-activating the substitution of the apoptosis activating the substitution with BAX requires intact BH1 and BH2 Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1 (By similarity). SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           caspase-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases (By similarity). Dephosphorylated by protein phosphatase 2A (PP2A)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              on Ser-70 by I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DOMAIN: The BH4 domain is required for anti-apoptotic activity and for interaction with RAF-1 (By similarity).

PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          release of cytochrome c from the mitochondria and/or by binding to the apoptosis-activating factor (APAF-1) (By similarity). SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  including factor-dependent lymphohematopoietic and neural cell: Regulates cell death by controlling the mitochondrial membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FUNCTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SWISS-PROT
                                                                                                                                                                                                                                                                                                                                                                                                 Q07817;
                                                                                                                                                                                                                                                                                                                                                                                                             AJ271720;
                                                                                                                                                                                                                                                                            SM00265;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          similarity).
 Similarity
                                                                                                                                                                          PS01260;
PS50063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Biophys. Res. Commun.
                                                                                                                                                                                                                                                                                                                                      IPR004725;
                                                                                                                                                            Transmembrane;
                                            236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              70 by PKC is required for the anti-apoptosis during the G2/M phase of the cell cycle (By
                                                           10
90
133
184
209
64
70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Swiss
                                            ΑĄ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               entry is copyright. It is produced through a constitute of Bioinformatics and the EMBL
                                                                                                                                                                                                                                                                              BH4;
                                                                                                                                                                                                                                                                                                                                                                                                             CAB92245.1;
                                                                                                                                                                          BH4_1; 1.
BH4_2; 1.
                                                                     104
152
199
230
                                            26491
                                                                                                                                                                                                                                                                                                                                                  Bc12_BH.
Bc12_BH4.
                                                                                                                                                                                                                                                                                                                                     Bcl2_reg.
 14.6%;
19.6%;
                                                                                                                                                                                                                                                                                                                                                                               BCL2_family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               apoptosis in
                                            MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cleaved
                                                                                                                                                            Mitochondrion; Phosphorylation
Score
Pred.
                                                                    BH4.
BH3.
BH1.
BH2.
POTENTIAL.
CLEAVAGE (BY CASPASE 3 AND CASPASE 9)
                                          PHOSPHORYLATION (BY PKC)
BECADF1EF3337228 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              281:404-408(2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         in vitro and
 128;
No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a variety
                                                                                                                                                                                                                                                                                                                                                                                                                                                        (See http://www
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  There are no resi
 DB 1;
.9e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                of.
               Length
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (By similarity).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       bу
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 restrictions
                                                      (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                      .isb-sib.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             activity and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         by
                                                        SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cells.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ch/announce,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                outstation
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RESULTATION OF THE PROPERTY OF
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ωy
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Cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MOUSE
                                                                                                                                                                                                                                                                                                                       MEDLINE=99069407; PubMed=9852076; Deng X., Ito T., Carr B., Mumby M., May W.S. Jr.; Deng X., Ito T., Carr B., Mumby M., May W.S. Jr.; "Reversible phosphorylation of Bcl2 following interleukin bryostatin 1 is mediated by direct interaction with prote;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eguchi Y., Ewert D.L., Tsujimoto Y.; "Isolation and characterization of the chinin a variety of tissues including lymphoid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Negrini M., Silini E., Kozak C., Tsujimoto Y., "Molecular analysis of mbcl-2: structure and e gene homologous to the human gene involved in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A. (ISOFORMS STRAIN-BALB/c; TISSUE-Liver;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P10417; P10418;
01-MAR-1989 (Rel. 10,
01-APR-1993 (Rel. 25,
15-JUN-2002 (Rel. 41,
                                                                                                                                                                                                                                                                                                    phosphatase 2A*.
                                                                                                                                                                                                                                                                                                                                                                                                                                   DEPHOSPHORYLATION BY PP2A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ito T., Deng X., Carr B., May W.S. Jr.;
"Bcl-2 phosphorylation required for anti-apoptosis function.";
J. Biol. Chem. 272:11671-11673(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=97277291;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PHOSPHORYLATION BY PKC, AND MUTAGENESIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              adult and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REVISIONS TO 221-222.
MEDLINE-92375724; PubMed=1508712;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=87187643; PubMed=3032455;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=10090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Apoptosis regulator Bcl-2
BCL2 OR BCL-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BCL2_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62
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                                                                                                                                                                                                                                                                            Biol. Chem.
                                                                                                                                           Biol. Chem. 273:34157-34163(1998).
FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the caspases.
                                                                         the apoptosis activating factor (APAF-1) SUBUNIT: Forms homodimers, and heterodim
                                               Bc1-x(L).
                                                                                                                           release of cytochrome c from the mitochondria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              49:455-463(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HLHTWIQDNGGWDAFVELYGPSVRPLFDFSWLSLKTLLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TLATWLRRRGGWTDVLKCV-VSTDPGFRSHWL-VATLCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FTARGREATVVEELERDGVNWGRIVAFFEEFGGVMCVESVNREMSPLVDNIALWMTEYLNR 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VHRDMAARTSPLRPIVATTGPTLSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDVGDVDAAPLGAAPTPGIFSFQPESNPTPA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Acids Res.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              embryo.";
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                       and
                                                                                                                                                                                                                                                                                                               is mediated
2A*.";
                                                    Heterodimerization with BAX requires intact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                          18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PubMed=9115213;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20:4187-4192(1992).
                          necessary
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ALPHA
                       for anti-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Craniata; Vertebrata;
Sciurognathi; Muridae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                         and heterodimers with BAX,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OF.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ., Croce C.M.;
expression of the murine
n follicular lymphoma.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             219
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        neuronal organs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  bcl-2 gene: expression
  RAF-1.
                                                                                                                         preventing and/or by h
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESIDUES
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                                                                                                                         binding
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                                                    and BH2
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                                                                               Query Match
Best Local S
Matches 43
                                                                                                                                                                                                                                                                                                                                  InterPro; IPR002475; BCL2_family.
InterPro; IPR000712; Bcl2_BH.
InterPro; IPR000712; Bcl2_BH4.
InterPro; IPR004725; Bcl2_reg.
InterPro; IPR004725; Bcl2_reg.
Pfam; PF00452; Bcl2_2; 1.
Pfam; PF02180; BH4; 1.
SMART; SM00337; BCL; 1.
SMART; SM00235; BH4; 1.
                                                                                                        Phosphorylation.
DOMAIN 10
DOMAIN 90
DOMAIN 133
DOMAIN 184
TRANSMEM 209
SITE 34
MOD_RES 70
VARSPLIC 193
                                                                                                                                                                                                                                                                    PROSITE; PS50062; I
PROSITE; PS01080; I
PROSITE; PS01258; I
PROSITE; PS01259; I
                                                                                                                                                                                                                                             PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 use by non-profit institutions as long as its content modified and this statement is not removed. Usage by are entitles requires a license.
                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This
                                                                                                                                                                                                                                                                                                                          TIGRFAMS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                               MGD;
                                                                                                                                                                                                                                 Apoptosis;
28 VAQAKALG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Dephosphorylated by protein phosphatase 2A (PP2A).

PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH4) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    are pro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         anti-apoptotic activity. Growth factor-stimulated phosphorylation Ser-70 by PKC is required for the anti-apoptosis activity are occurs during the G2/M phase of the cell cycle. In the absence growth factors, Bcl2 appears to be phosphorylated by other protections such as ERKs and stress-activated kinases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for interaction with RAF-1. Phosphorylation on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DOMAIN: The BH4 domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ALTERNATIVE PRODUCTS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUBCELLULAR membrane of
                                                                                                                                                                                                                                                                                                                                                                                                                                              MGI:88138;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B25960; TVMSB1.
E37332; E37332.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; L31532; AAA37282.1; -.; M16506; AAA37282.1; JC; M16506; AAA37281.1; -. A25960; TVMSA1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SWISS-PROT entry is copyright. It is produced through a cen the Swiss Institute of Bioinformatics and the EMBL
                          43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q07817;
                                     Similarity
                                                                                                                                                                                                                                            PS01260;
PS50063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                produced by alternative splicing SPECIFICITY: Expressed in a v
                                                                                                                                                                                                                                                                                                                          TIGR00865;
                                                                                                                                                                                                                               Alternative
                                                                               236
                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1MAZ
                                                                               AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                              Bcl2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCATION: Outer mitochondrial membrane, intracellul the nuclear envelope and the endoplasmic reticulum
                                                                                                                                                                                                                                                                                 вн2;
                                                                                                                                                                                                                                                                                                           65; bcl-2; 1.
BCL2_FAMILY;
                                                                                                                                                                                                                                             BH4_1; 1.
BH4_2; 1.
                                                                                                                                                                                                                                                                                                 BH1;
                                                                                                          30
104
152
152
199
230
230
236
·REYVHARLLRAGLSW----
                                                                              26425
                                     14
19
                                    . 58
. 58
. ;
                                                                                                                                                                                                                              splicing; Transmembrane; Mitochondrion;
                                                                               W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2 isoforms; alpha (shown here) and beta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOINED
                          26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    is required for anti-apoptotic
                       Score 127; DE
Pred. No. 2.4e
26; Mismatches
                                                                            DAFVELYGPSMRPLFDFSWLSLKTLLSLALVGACITLGAYL GHK -> VGACLVE (IN ISOFORM BETA).; AA85EF6B0766BE0A CRC64;
                                                                                                                    BH3.

BH1.

BH2.

POTENTIAL.

CLEAVAGE (BY CASPASES) (BY SIMILARITY).

PHOSPHORYLATION (BY PKC).
                                                                                                                                                                                                                                                                                                             1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  variety of tissues
                                     DB 1;
.4e-05;
-SAPERASPAPG--
                          58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ser-70
                                                Length 236;
                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            regulates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            phosphorylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                activity and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    intracellular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    activity
                       92;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BCl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein
                       Gaps
61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        no
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BCL2_CHICK
                                                                                                                                                                                                                                                                      "Molecular cloning and DNA sequence analysis of cDNA encoding chicken the homologue of the Bcl-2 oncoprotein.";

Biochim. Biophys. Acta 1132:109-113(1992).

L Biochim. Biophys. Acta 1132:109-113(1992).

C -!- FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoletic and neural cells. C Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the caspases of cytochrome c from the mitochondria and/or by binding to the elease of cytochrome c from the mitochondria and/or by binding to the apoptosis-activating factor (APAF-1).

C -!- SUBDUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and BCl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1 (By similarity).

SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular
                     This
                                                                                                                                                                                                                                             <del>:</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=92379084; PubMed=1511008; Cazals-Hatem D.L., Louie D.C., Tanaka S., Reed J.C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTSSUE=B-cell lymphoma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A. MEDLINE=92375724; PubMed=1508712;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Apoptosis regulator Bcl-2.
BCL2 OR BCL-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-APR-1993
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q00709;
01-APR-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eguchi Y., Ewert D.L., isujinous The chicken "Isolation and characterization of the chicken and the chicken including lymphoid and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=9031;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Archosauria; Aves; Neognathae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gallus gallus (Chicken).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           σ
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62
                                               TISSUE SPECIFICITY: In adult chicken expressed, in thymus, kidney, heart, ovary and brain, with the highest levels in the membryo, highly levels expressed in all tissu high levels in the bursa of Fabricius.

DOMAIN: The BH4 domain is required for anti-apoptotic active for interaction with RRF-1 (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.

SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1
                                                                                                                                                                                                                                         membrane of the nuclear envelope and the endoplasmic TISSUE SPECIFICITY: In adult chicken expressed, in the
                 SWISS-PROT entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OR BCL-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHICK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HLHTWIQDNGGWDAFVELYGPSMRPLFDFSWLSLKTLLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TLATWLRRRGGWTDVLKCV-VSTDPGFRSHWL-VATLCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FTARGREATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VHREMAARTSPLRPLVATAGPALSPVPPCVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDAGDADAAPIGAAPTPGIFSFQPESNPMPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and embryo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Acids Res.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -GRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (Rel. 25, Created)
(Rel. 25, Last sequence up
(Rel. 41, Last annotation
 Swiss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20:4187-4192(1992).
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                     ıs.
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copyright. It is produ
tute of Bioinformatics
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; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  æ
                 produced through a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bc1-2 gene: expression
neuronal organs in
                                                                                                                                                                                                       in all tissues with
                                                                                                                                                                                                                                                             reticulum
                                                                                                                                                                 activity
   collaboration
                                                                                                                                                                                                                        spieen,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180
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EMBL outstation

European Bioinformatics Institute.

non-profit

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RESULT 7

AR1_XEMLA
ID AR1_X
AC Q9182
AC Q9182
DT 01-NO
DT 15-JU
DE Apopt
OS Xenop
OC Eukar
OC Amphil
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                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                          Query Match
                              01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Apoptosis regulator R1 (XR1) (Fragment).
Xenopus laevis (African clawed frog).
                                                                                           AR1_XENLA
Q91827;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIGREAMS; TIGROO865; bc1-2; 1.
PROSITE; PS50062; BCL2_FAMILY; 1.
PROSITE; PS01080; BH1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SMART; SM00337; BCL;
SMART; SM00265; BH4;
                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROSITE; PS01260; BH4_1; 1. PROSITE; PS50063; BH4_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROSITE; PS01258; BH2; PROSITE; PS01259; BH3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PIR; A37332; A37332.
PIR; S24390; S24390.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               or send
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        modified and this st
entities requires a
                      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                             CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                       CONFLICT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Apoptosis;
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL;
          Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
                                                                                                                                                             180 HNWIQDNGGWDAFVELYGNSMRPLFDFSWISLKTILSLVLVGACITLGAYL
                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                                                                                                                                            20 RSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP----
                                                                                                                                                                                                                                                                                                    · 7
                                                                                                                                                                                     ATWLRRGGWTDVLKCV-VSTDPGFRSHW--
                                                                                                                                                                                                            AHGREVAVVEELERDGVNWGRIVAFFEEGGVMCVESVNREMSPLVDNIATWMTEYLNRHL
                                                                                                                                                                                                                                  -GGRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTL
                                                                                                                                                                                                                                                         HHRPEPPGSAAASEVPPAEGLRPAPPGVHLALRQAGDEFSRRYQRDFAQMSGQLHLTPFT
                                                                                                                                                                                                                                                                                                       RGYDNREIVL------KYIHYKLSQRGYDWAAGEDRPPVPPAPAAAPAAVAAAGASS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               D11382; BAA01978.1;
D11381; BAA01978.1;
Z11961; CAA78018.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                007817;
                                                                                                                                                                                                                                                                                                                                                     38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               an email to license@isb-sib.ch;
                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IPR004725;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IPR003093;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IPR000712;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IPR002475;
                                                                                                                                                                                                                                                                                                                                                                                                121
139
233 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                            10
87
130
181
208
64
67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Transmembrane;
                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bioinformatics Institute. There are no restrictions on its profit institutions as long as its content is in no way this statement is not removed. Usage by and for commercial uires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                               121
139
25687 MW;
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101
149
                                                                                                                                                                                                                                                                                                                                                                                                                                            196
228
64
82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BCL2_family.
Bcl2_BH.
Bcl2_BH4.
Bcl2_reg.
                                                                                                                                                                                                                                                                                                                                                              16.5%;
                                                                                                                                                                                                                                                                                                                                                                          12.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mitochondrion.
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                                                                                                                                                                                                                                                                                                                                                     28;
                                                                                                                                                                                                                                                                                                                                                              Score 113;
Pred. No. 0.
                                                                                                                                                                                                                                                                                                                                                                                                            G
                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL.
E -> S (IN REF. 2
GSAAASEVPPAEGLRP
                                                                                                                                                                                                                                                                                                                                                                                                                                  (IN REF.
                                                                                                                                                                                                                                                                                                                                                                                                 5252555ACB6E4C3D, CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                             IN REF. 2).
-> T (IN REF. 2).
-> V (IN REF. 2).
                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                        228
                                                                                                                                                                                                                                                                                                                                                  .00056;
les 67;
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(P -> ARLLLVRCPRLRGCA
                                                                                                                                                                                                                                                                                                                                                                        Length
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                                                                                                                                                                                                                                                                                                                                                   98;
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BCLX_RAT
ID BCLX
AC P535
DT 01-C
DT 01-N
DT 15-J
DE Apop
GN BCLZ
OS Ratt
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                               BCLX_RAT STANDARD; PRT; 233 AA. P53563; Q62678; P70614; P70613; Q62836; Q6408 01-OCT-1996 (Rel. 34, Created) 01-NOV-1997 (Rel. 35, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation update) Apoptosis regulator Bcl-x.
BCL2L1 OR BLC2L OR BCLX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; X82462; CAA57845.1;
HSSP; Q07817; 1MAZ.
InterPro; IPR002475; BCL2_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -!- SUBCELLULAR LOCATION: Membrane-bound (Potential).
-!- DEVELOPMENTAL STAGE: DEVELOPMENTAL REGULATION ONLY OCCURS IN BRAIN OF MID-METAMORPHOSIC TO POST-METAMORPHOSIC TADPOLES AN ADULTS, WHERE AN INCREASE OF SEVERAL FOLD HAS BEEN OBSERVED.
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
-!- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Cloning, characterization and expression of two Xenopus bcl-2-like cell-survival genes.";
Gene 158:171-179(1995).
-i- FUNCTION: COULD BE THE HOMOLOG OF MAMMALIAN BCL-W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TRANSMEM
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NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROSITE; PS01258; BH2; 1. PROSITE; PS50062; BCL2_FAMILY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SMART; SM00337; BCL; 1.
SMART; SM00265; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        use by non-profit institutions as long modified and this statement is not removed.
                      Rattus norvegicus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROSITE; PS01080; BH1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 entities requires a license agreement (See http://www.isb-sib.ch/announce/
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE=95331613; PubMed=7607538;
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                                                                                                                                                                                                                                                                                                                                                         149 EMSPLLPRIQDWMVTYLETNLRDWIQSNGGWNGFL
                                                                                                                                                                                                                                                                                                                                                                                                               99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    68
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pro; IPR003093;
PF00452; Bcl-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
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171
207
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                            (Rat)
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186
  Chordata;
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Bcl2_BH.
Bcl2_BH4.
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21.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            25068 MW;
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Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C499D449A585F8A9 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                         064087;
                                                                                                                                                                                                                                                                                                                                                         183
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Tilly J.L., Tilly K.I., Kenton M.L., Johnson A.L.;
"Expression of members of the bcl-2 gene family in the immature rat ovary: equine chorionic gonadotropin-mediated inhibition of granulos cell apoptosis is associated with decreased bax and constitutive bcl-2 and bcl-xiong messenger ribonucleic acid levels.";
Endocrinology 136:232-241(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A. (ISOFORMS X(L) STRAIN-Sprague-Dawley; TISSUE-Ova MEDLINE-95129487; PubMed-7828536;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "An additional form of rat Bcl-x, Bcl-xbeta, generated by a unspliced RNA, promotes apoptosis in promyeloid cells."; J. Biol. Chem. 271:13258-13265(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TISSUE=Brain;
Wesselingh S.L., Davi
Submitted (JUN-1995)
                                                                          the
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS). MEDLINE=98010630; PubMed=9346936;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Michaelidis T.M.;
Submitted (DEC-1994)
     entities
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Morikawa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Aritomi M., Kunishima N., Inohara N., Ishibashi Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TISSUE-Thymus
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NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Crystal structure of rat Bcl-xL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-96278736;
                                                                                                                                                                      cleaved protein, lacking the BH4 domain, activity (By Similarity).
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4
SIMILARITY: CONTAINS 1 BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity). Heterodimerization with BAX does not seem to required for anti-apoptotic activity (By similarity).
SUBGELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUC ENVELOPE (BY SIMILARITY).
ALTERNATIVE PRODUCTS: 3 ISOFORMS, BCL-X(L) (SHOWN HERE), AND BCL-X(BETA); ARE PRODUCED BY ALTERNATIVE SPLICING.
TISSUE SPECIFICITY: EXPRESSED IN MOST TISSUES. BCL-X(BETA) SPECIFICALLY EXPRESSED IN CEREBELLUM, HEART, AND THYMUS.
OVARY, THE PREDOMINANT FORM IS BCL-X(L), WITH A SMALL BUT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                caspases (By similarity). Appears to regulate cell death by blocking the volatage-dependent anion channnel (VDAC) by binding to it and preventing the release of the caspase activator, cytochrome c, from the mitochondrial membrane. The Bcl-x(S) and Bcl-x(Deta) isoforms promote apparation
                                                                                                                                                                                                                                                                                                                                               DOMAIN: The BH4 domain is required for anti-apoptotic activity. The BH1 and BH2 domains are required for both heterodimerization with other Bc12 family members and for repression of cell death. PTM: Proteolytically cleaved by caspases during apoptosis. The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cytochrome c, from the mitochondrial membrane. The Bcl-x(beta) isoforms promote apoptosis.
SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bcl-2 protein family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                DETECTABLE LEVEL OF BCL-X(S).
                                                                                                                        SWISS-PROT entry is
                    non-profit and this st
requires
                                                                                                   the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Chem. 272:27886-27892(1997)
                    ROT entry is copyright. It is produced through a collaboration Swiss Institute of Bioinformatics and the EMBL outstation Bioinformatics Institute. There are no restrictions on its profit institutions as long as its content is in no way this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    David
  statement
a license
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (ISOFORMS X(L) AND Ley; TISSUE-Ovary;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (ISOFORMS
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EMBL/GenBank/DDBJ
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                                                                                                                                                                                                                                                                                                                     domain, has pro-apoptotic
(See
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(Rel. 31, Created)

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BCLX_CHICK
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Matches 33
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EMBL; X82537; C
EMBL; U70579; A
EMBL; U72350; A
EMBL; U72349; A
EMBL; U34943; A
EMBL; S76513; A
EMBL; S78284; A
BCLX_CHICK
Q07816; Q98908;
Q1-FEB-1995 (Re
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InterPro; IPR000712; E
InterPro; IPR003093; E
InterPro; IPR004725; E
InterPro; IPR004725; E
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PROSITE; P
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SMART; SM00265; BH4; 1.
TIGREAMS; TIGR00865; bcl-2;
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3D-structure
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PS50063;
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PS01080; BH1; 1.
PS01258; BH2; 1.
PS01259; BH3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mitochondrion;
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CAA57887.1;
AAA19257.1;
AAB17353.1;
AAB17352.1;
AAB173686.1;
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AAC60702.1; -.
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                                                                                                                                                                                                                                                                                                                                                 -EVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFV
                                                    STANDARD;
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BH4_2; 1.
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Bcl2_BH.
Bcl2_BH4.
Bcl2_reg.
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17.0%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IDYSGDIPGLL (IN ISOFORM BCL-X(BETA)).

R -> Q (IN REF. 1).
F -> S (IN REF. 2).
A -> E (IN REF. 2).
I -> L (IN REF. 4).
A -> V (IN REF. 4).
A -> T (IN REF. 4).
A -> P (IN REF. 4).
A -> P (IN REF. 4).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 107; DE
Pred. No. 0.00
25; Mismatches
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MISSING (IN ISOFORM BCL-X(S)).
DTFVDLYGNNAAAESRKGQERFNRWFLTGMTVAGVVLLGSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FSRK -> VRTTPLVCPPLVCLSSVEIPNCPFWSPGMVVED
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TINGER REPORTED TO THE REPORT OF THE PROPERTY 
                                                                                                                                                                                                Pfam; PF00452; Bc1-2; 1
Pfam; PF02180; BH4; 1.
SMART; SM00337; BCL; 1.
SMART; SM00265; BH4; 1.
TIGRFAMS; TIGR00865; bc
PROSITE; PS50062; BCL2_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Apoptosis regulator Bc1-X.
BCL2I1 OR BCLX OR BCL-X.
BCL2I21 OR BCLX (Chicken).
Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Brichosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasiani
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
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Turka L.A., Mao X., Nunez G., Thompson C.B.;
"bcl-x, a bcl-2-related gene that functions as
of apoptotic cell death.";
                       Apoptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Entropean Bioinformatics Institute. There are no restruce by non-profit institutions as long as its content
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[2]
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MEDLINE=93364977; PubMed=8358789;
                                                                           PROSITE; PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    PIR; A47537; A47537.
HSSP; P53563; 1AF3.
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Mol. Reprod. Dev.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Vilagrasa X., Mezquita C., Mezquit
"Differential expression of bcl-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN-Hubbard White Mountain; TI MEDLINE-97264485; PubMed-9110311;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=9031;
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                                                                                                                            PROSITE; PS01080;
PROSITE; PS01258;
PROSITE; PS01259;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A. (LONG FORM).
                                                                                                                                                                                                                                                                                                                                                       InterPro;
                                                                                                                                                                                                                                                                                                                                                                                 InterPro;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FUNCTION. INFACT BH1 AND BH2 DOMAINS ARE REQUI
APOPTOTIC ACTIVITY (BY SIMILARITY).
SIMILARITY: CONTAINS 1 ECL-2 HOMOLOGY 1 (BH1)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4)
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FUNCTION: DOMINANT REGULATOR OF APOPTOTIC CELL DEATH.
FORM DISPLAYS CELL DEATH REPRESSOR ACTIVITY, WHEREAS 'ISOFORM PROMOTES APOPTOSIS (BY SIMILARTY).
SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ENVELOPE (BY SIMILARITY).

ALTERNATIVE PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND SHORT FORM; ARE PRODUCED BY ALTERNATIVE SPLICING.

TISSUE SPECIFICITY: HIGHEST EXPRESSION IN ORGANS WITH LYMPHOID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DOMAIN: BH4 DOMAIN SEEMS TO BE INVOLVED
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U26645; AAB07677.1;
                                                                                                                                                                                                                                                                                                                                                                                                   IPR002475;
IPR000712;
                                                                                                                                                                                                                                                                                                                                                 IPR004725;
Transmembrane;
4 24
82 96
                                                                      BH4_1; 1.
BH4_2; 1.
                                                                                                                                                    BH1;
BH2;
                                                                                                                                                                                                  65; bcl-2; 1.
BCL2_FAMILY;
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                                                                                                                                                                                                                                                                                                                                            BCL2_family.
BCl2_BH.
BCl2_BH4.
BCl2_reg.
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                                                   Alternative
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  вн4.
вн3.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PERINUCLEAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Lindsten
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SHORT
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RESULT
BCLX_MC
    В
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                      Thompson C.B., Nunez G.;
"bc1-XL is the major bc1-x mRNA form edevelopment and its product localizes
Development 120:3033-3042(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BCLX_MOUSE STANDARD; PRT; 3, 64373; Q60657; Q6058; Q61338; Q60-507; Q6058; Q61338; Q1-NOV-1997 (Rel. 35, Last sequence upon the control of th
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAIN=2A4B;
Kamesaki H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                    SEQUENCE FROM N.A.
MEDLINE=97289584; PubMed=9144489;
Grillot D.A., Gonzalez-Garcia M.,
Ohta S., Seldin M.F., Nunez G.;
                                                                                                                                                                                                                                                                                                                  MEDLINE=95052604; PubMed=7963517;
Fang W., Rivard J.J., Mueller D.L., Behn "Cloning and molecular characterization"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN=C57BL/6; TISSUE=Brain; MEDLINE=95331139; PubMed=7607090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Kamesaki H., Michaud
Submitted (MAR-1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Apoptosis regulator Bcl-x. BCL2L1 OR BCL2L OR BCL2L
                                                                                                                                      apoptosis
                                                                                                                                                                                 Yang
                                                                                                                                                                                                    MEDLINE=98051053;
                                                                                                                                                                                                                       STRAIN-C57BL/6
                                                                                                                                                                                                                                       SEQUENCE FROM N.A. (ISOFORM X(BETA)).
                                                                                                                                                                                                                                                                                                                                                                                  TISSUE-Pre-B
                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A. (ISOFORMS X(L);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gonzalez-Garcia M., Perez-Ballestero
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A. (ISOFORMS X(L) AND X(BETA)).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=10090;
Genomic organization,
                                                                                                                                                                                                                                                                                                   Lymphocytes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         118
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                   novel Bcl-x isoform connected to the optosis in T cells."; munity 7:629-639(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             х. -F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VHRSSLEVHEIVRASD-----VRQALRDAGDEFELRYRRAFSDLTSQLHITPGTAYQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IQENGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LRRRGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SFEQVVNELFHDGVNWGRIVAFFSFGGALCVESVDKEMRVLVGRIVSWMTTYLTDHLDPW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -LAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               229
                                                                                                                                                                           Weber G.F., Cantor
                                                                                                                                                                                                                                                                               153:4388-4398(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      125
176
206
185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  129
                                                                                                                                                                                                                                                                                                                                                                                cell;
                                                                                                                                                                                                                     X CBA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A
                                                                                                                                                                                                  PubMed=9390687;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      144
191
223
229
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               25733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12.0%;
                                                                                                                                                                                                                       TISSUE=Thymus;
  promoter region analysis, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Takatsu K., Okuma N
e EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   23;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 105.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL.

ERFVDLYGNNAAAELRKGQETFNKWLLTGATVAGVLLLGSL
LSRK -> VRTALP (IN SHORT ISOFORM).
                                       ;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A97D3A4D04C0E9DA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                       Ekhterae
                                                                                                                                                                                                                                                                                                                                                                                                X(S)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  update)
                                                                                                                                                                                                                                                                                                                                           Behrens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ₽.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            expressed during s to mitochondria.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Okuma M
                                                                                                                                                               н
                                                                                                                                                                                                                                                                                                                      of mouse
                                                                                                                                                                                                                                                                                                                                                                                                AND X(DELTA-TM))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .003;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ding L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AA
                                                                                                                                                               cell receptor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 1;
                                       Ď.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          databases.
                                       Duan L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SHORT ISOFORM)
CRC64;
                                                                                                                                                                                                                                                                                                                      bcl-x
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Duan L., Boise L.H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
  chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                               murine
.";
                                                                                                                                                                                                                                                                                                                      in
                                                                                                                                                               regulates
                                         Inohara
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          229;
                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                        and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               122
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```
Pfam; PF00452; Bcl-2; 1.

Pfam; PF02180; BH4; 1.

SMART; SM00337; BCL; 1.

SMART; SM00385; BH4; 1.

TIGRFAMS; TIGR00865; bcl-2; 1.

PROSTIE; PS50062; BCL2_FAMILY; 1
                                                                                                                                                                                          TIGREAMS;
PROSITE; F
PROSITE; F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 localization of the mouse bcl-x gene.";
J. Immunol. 158:4750-4757(1997).
-i- FUNCTION: Potent inhibitor of cell
DOMAIN
DOMAIN
                                                                                                                     PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      use by non-profit institutions as long modified and this statement is not removed entitles requires a license agreement (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EN the European Bioinformatics Institute. There are no restructed the suppose of the sup
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             - -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                MGD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     or send an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <del>-</del>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <del>-</del>
                                               Apoptosis;
DOMAIN
                                                                                                                                                                    PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -
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                                                                                                 PROSITE;
                                                                                                                                                                                                                                                                                                                                                                 InterPro;
                                                                                                                                                                                                                                                                                                                                                                                     InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      with other Bcl2 family members and for repression of cell PTM: Proteolytically cleaved by caspases during apoptosis similarity). The cleaved protein, lacking the BH4 domain, apoptotic activity (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ISOFORM PROMOTES apoptosis.

SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and Bcl-2 (SUBUNIT: Bcl-x(L) forms heterodimers with BAX does not seem to be similarity). Heterodimerization with BAX does not seem to be required for anti-apoptotic activity (By similarity).

SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR ENVELOPE FOR BCL-X(L). CYTOPLASMIC FOR BCL-X(DELTA-TM).

ALTERNATIVE PRODUCTS: 4 ISOFORMS; BCX-X(L) (SHOWN HERE), BCL-X(BETA) AND BCL-X(DELTA-TM); ARE PRODUCED BY ALTERNATIVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SPLICING.

SPLICING.

TISSUE SPECIFICITY: WIDELY EXPRESSED, WITH HIGHEST LEVELS IN THE BRAIN, THYMUS, BONE MARROW, AND KIDNEY. BCL-X(L) AND BCL-X(DELTA-TM) EXPRESSION IS ENHANCED IN B AND T LYMPHOCYTES THAT HAVE BEEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACTIVATED.

DEVELOPMENTAL STAGE: BCL-X(BETA)IS |
POSTNATAL TISSUES, WHEREAS BCL-X(L)
POSTNATAL TISSUES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DOMAIN: The BH4 domain is required for anti-apoptotic The BH1 and BH2 domains are required for both heterod with other Bc12 family members and for repression of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        to it and preventing the release of the caspase activator, cytochrome c, from the mitochondrial membrane. The Bcl-x(S)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         caspases (By similarity). Appears to regulate cell death by blocking the volatage-dependent anion channnel (VDAC) by binding to it and preventing the release of the caspase activator,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                MGI:88139;
                                                                                                                  PS01260;
                                                                                                                                                                                             PS01080;
                                                                                                                                                                                                                                                                                                                                                          IPR002475; BCL2_family.
IPR000712; Bc12_BH.
IPR003093; Bc12_BH4.
IPR004725; Bc12_reg.
                                                                     Mitochondrion;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bc121.
                                                                                            BH4_1;
BH4_2;
                                                                                                                                                                                             BH1;
                                                                                                                                                внз;
  24
100
148
                                                                     Alternative splicing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOINED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      of cell death.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EXPRESSED IN BOTH
) IS PREDOMINANTLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            There are no restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        as
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Inhibits activation late cell death by
                                                                   Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       heterodimerization
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          apoptosis
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL outstation
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Best Local S
Matches 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BCLX_PIG STANDARD; PF O77737.
15-JUL-1999 (Rel. 38, Created)
15-JUL-1999 (Rel. 38, Last seque 15-JUN-2002 (Rel. 41, Last annot Apoptosis regulator Bcl-x.
BCL2L1 OR BLCZL OR BCLX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN
TRANSMEM
VARSPLIC
VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sus scrofa (Pig).
Eukaryota; Metazoa; Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                <del>:</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mammalia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            126 RGGW
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      66
                                                                                                                                                                                                                                                                                                                             ENVELOPE (BY SIMILARITY).

ENVELOPE (BY SIMILARITY).

DOMAIN: The BH4 domain is required for anti-apoptotic activity.

The BH1 and BH2 domains are required for both heterodimerization

with other Bc12 family members and for repression of cell death.

with other Bc12 family members and for apoptosis (By
                                                                                                                                                                        PTM: Proteolytically cleaved by caspases during the similarity). The cleaved protein, lacking the apoptotic activity (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     similarity). Heterodimerization with BAX does not seem required for anti-apoptotic activity (By similarity). SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERIOR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NGGW
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              l Similarity
17; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Metazoa; Chordata; Craniata; Vertebrata; Eutheria; Cetartiodactyla; Suina; Suidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            129
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Last annotation updat
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 105; DE
Pred. No. 0.00
15; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    X(DELTA-TM)).
; 24D2AC79887E072E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BCL-X(BETA)).
LYGNNAAAESRKGQERFNRWFLTGMTVAGVVLLGSLFSRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MISSING (IN ISOFORM BCL-X(S)).
DTFVDLYGNNAAAESRKGQERFNRWFLTGMTVAGVVLLGSL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL
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                                                                                                                                                                                               DOMAIN.
DOMAIN.
DOMAIN.
DOMAIN.
                                                                                                                                                                                                                                                                                                                 ng apoptosis
BH4 domain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Euteleostomi;
Sus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          PERINUCLEAR
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                                                                                                          a collaboration war outstation -
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RESULT 12
BCLX_H
ID. BCLX_H
AC Q07817
DT Q1-FEB
CC Mammal
OX NCBI_T
RN [1]
RP SEQUEN
RA GUSL-W
RT Of apc
RL Cell 7
RN [2]
RP SEQUEN
RA INOMAI
RT SEQUEN
RA INOMAI
RT (3]
RP MUTAGI
RX SEGUAI
RA KOTSMU
RT Wilt
RA FOCC
RL Cell 7
RN [3]
RP MUTAGI
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Best Local :
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TIGREAMS; TIGRO0865; bc1-2; 1.
PROSITE; PS50062; BC12_EAMILY; 1
PROSITE; PS011080; BH1; 1.
PROSITE; PS011258; BH2; 1.
PROSITE; PS011259; BH3; 1.
PROSITE; PS01250; BH4 1; 1.
PROSITE; PS01260; BH4 4 2; 1.
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SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; AJ00
HSSP; Q078
InterPro;
                                                                                                                                                                                     Turka L.A., Mao X., Nunez G., Thompson C.B.;
"bcl-x, a bcl-2-related gene that functions as a
of apoptotic cell death.";
                                                                                                                                                                                                                                                                                                                       Apoptosis regulator Bcl-x.
BCL2L1 OR BCL2L OR BCLX.
Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                            007817; 092976;
01-FEB-1995 (Rel. 31, Created)
01-FEB-1995 (Rel. 31, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                         Boise L.H., Gonzalez-Garcia M.,
                                                                                                                                                                                                                                          SEQUENCE FROM N.A. (ISOFORMS X(L) AND X(S)). MEDLINE=93364977; PubMed=8358789;
                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SMART; SM00337; SMART; SM00265;
                                                                         MUTAGENESIS OF GLY-138, AND HETERODIMERIZATION MEDLINE=95372373; PubMed=7644501.
                                                                                                                                                                                                                                                                                                                                                                                                                    BCLX_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Apoptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam;
                                       Korsmeyer S.J.; ^{\prime} members demonstrate selective dimerizations
                                                                 Sedlak T.W., Oltvai Z.N.,
                                                                                                                       Submitted
                                                                                                                                    Inohara
                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DOMAIN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      185
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                                                                                                                                                                           74:597-608(1993).
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               Natl.
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17; Conserv
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                                                                                                                   FROM N.A. (ISOFORM BETA).
N., Ohta S.;
d (OCT-1996) to the EMBL/G
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129
180
210
233 AA;
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             Acad. Sci. U.S.A. 92:7834-7838(1995).
                                                                                                                                                                                                                 Mao X., Nunez G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
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26061 MW;
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                                                                                                                      the EMBL/GenBank/DDBJ databases
                                                                 Yang
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 104; DB
Pred. No. 0.00
15; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL.
18BF6FA0441912B2 CRC64;
                                                                 E)
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                                                                                                                                                                                                                             Postema C.E.,
                                                                Wang
                                                                                                                                                                                                                                                                                                                                                                                                                   233
                                                                 K., Boise L.H., Thompson C.B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                   AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             32;
                                                                                                                                                                                                                             Ding L., Lindsten T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 233;
                                                                                                                                                                                                    dominant regulator
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EMBL;

Z23116; CAA80662.1; Z23115; CAA80661.1; U72398; AAB17354.1;

EMBL;

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MEDLINE=97172562; PubMed=9020082; Sattler M., Liang H., Nettesheim D., Meadows R.P., Harlan J.E Eberstadt M., Yoon H.S., Shuker S.B., Chang B.S., Minn A.J., Thompson C.B., Fesik S.W.; Structure of Bcl-xL-Bak peptide complex: recognition between regulators of apoptosis."; Science 275:983-986(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Clem R.J., Cheng E.H.-Y., Karp C.L., Takahashi A., Kastan M.B., Griffin D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ng S.L., Fesik S.W.;
"X-ray and NMR structure of human Bcl-xL,
cell death.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 X-RAY CRYSTALLOGKAFH: (... MEDLINE=96256675; PubMed=8692274;
MEDLINE=96256675; PubMed=8692274;
Michmore S.W., Sattler M., Liang H., Meadows R.P., Ha
                                     1 1 1 1
                                                                                                                                                                                                                                                                                                                                                                                                  +
                                                                                                                                                                                                                                                                                                                                                                                                                                                     -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLEAVAGE BY CASPASÉS, AND MUTAGENESIS MEDLINE=98118550; PubMed=9435230;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Korsmeyer S.J.; "Bax-independent inhibition of apoptosis" \ensuremath{\text{Bax-independent}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cheng E.H.-Y., Levine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Modulation of cell death bx Bc1-xL through caspase interaction.";
Proc. Natl. Acad. Sci. U.S.A. 95:554.559(1998).
-i-FUNCTION: Potent inhibitor of cell death. Inhibits activation of caspases (By similarity). Appears to regulate cell death by blocking the volatage-dependent anion channel (VDAC) by binding to it and preventing the release of the caspase activator.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hardwick J.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nature 381:335-341(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRUCTURE BY NMR OF 1-209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nature 379:554-556(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=96170038;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MUTAGENESIS OF BH1 AND BH2 DOMAINS.
activity.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4)
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                           ALTERNATIVE PRODUCTS: 3 ISOFORMS; BCL-X(L) (SHOWN HERE), BCL-X(S) AND BCL-X(BETA); ARE PRODUCED BY ALTERNATIVE SPLICING.
TISSUE SPECIFICITY: BCL-X(S) IS EXPRESSED AT HIGH LEVELS IN CELLS THAT UNDERGO A HIGH RATE OF TURNOVER, SUCH AS DEVELOPING LYMPHOCYTES. IN CONTRAST, BCL-X(L) IS FOUND IN TISSUES CONTAINING LONG-LIVED POSTMITOTIC CELLS, SUCH AS ADULT BRAIN.
DOMAIN: The BH4 domain is required for anti-apoptotic activity. The BH1 and BH2 domains are required for both heterodimerization with other Bcl2 family members and for repression of cell death.

PTM: Proteolytically cleaved by caspases during apoptosis. The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          apoptotic activity.
SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR ENVELOPE (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          isoform promotes apoptosis.
SUBUNIT: Bcl-x(L) forms het
                                                                                                                                                                         cleaved protein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Heterodimerization with BAX does
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cytochrome c,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PubMed=8596636;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 from the mitochondrial membrane.
                                                                                                                                                                       lacking the BH4 domain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             heterodimers
BAX does not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kirsch D.G., Ueno K.,
.E., Earnshaw W.C., Veliuona M.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QF
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           an inhibitor of programmed
                                                                                                                                                                         has
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BAX, B
                                  DOMAIN.
DOMAIN.
                                                                                                                                                                       pro-apoptetic
                                                                                                                      DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The Bcl-x(S)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BAK and Bcl-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Harlan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Harlan J.E.,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BY NMR OF 1-209.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hardwick J.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               J.E.,
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1LXL; 1MAZ;

21-APR-97. 21-APR-97.

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BAXB_ID
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COC
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Best Local S
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InterPro; IPR000712; Bcl2_BH.
InterPro; IPR003093; Bcl2_BH4.
InterPro; IPR004725; Bcl2_reg.
Pfam; PF00452; Bcl-2; 1.
Pfam; PF02452; Bcl-2; 1.
SMART; SM00337; BCL; 1.
SMART; SM00337; BCL; 1.
ITIGRPAMS; TIGR00865; bCl-2; 1.
PROSITE; PS50062; BCL2_FAMILY; 1.
                                            BAXB_HUMAN STAN
Q07814;
Q1-FEB-1995 (Rel. 3
Q1-FEB-1995 (Rel. 3
Q1-FEB-1995 (Rel. 3
                                                                                                                                                                                                                                               MUTAGEN
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROSITE;
PROSITE;
PROSITE;
PROSITE;
                                                                                                                                                                                                                                                                                             MUTAGEN
MUTAGEN
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MUTAGEN
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VARSPLIC
                                                                                             HUMAN
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MUTAGEN
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                                                                                                                                                                                                                                                                                                                                                                                                                                      SITE
                                    Apoptosis
                                                                                                                                                                                                                                                                                     MUTAGEN
                                                                                                                                                                                                                                                                                                                                           MUTAGEN
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       Eukaryota;
                  Homo sapiens (Human).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3D-structure.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Apoptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               šenew;
                                                                                                                                 185
                                                                                                                                                   126
                                                                                                                                                                      125
                                                                                                                                                                                        66
                                                                                                                                                                                     EVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125
                                                                                                                                 NGGW
                                                                                                                                                  RGGW 129
                                                                                                                                                                     QVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIAAWMATYLNDHLEPWIQE
                                                                                                                                                                                                          l Similarity
17; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HGNC:992; BCL2L1.
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PS01080;
PS01258;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PS50063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PS01260;
Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                     regulator
                                                                                                                                 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mitochondrion;
                                                                                                                                                                                                                                                233 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                   4
86
129
180
210
210
61
126
                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                         189
70
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148
156
176
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135
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                                                                                                                                                                                                                                                                                     188
                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                   STANDARD;
                                            . 31, Created)
. 31, Last sequence 41, Last annotations.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BH4_1; 1.
BH4_2; 1.
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100
148
195
226
61
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137
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70
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                                   1, Last sequence up
1, Last annotation
BAX, cytoplasmic
                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                26049
                                                                                                                                                                                                                  11.7%;
26.6%;
                                                                                                                                                                                                                                                                                                                                                       BH1.

BH2.

POTENTIAL.

CLEAVAGE BY CASPASE-1.

CLEAVAGE BY CASPASE-1.

MISSING (IN ISOFORM BCL-x(S)).

DITVELYCONNAAAESRKOOEFWRWET/GMTVAGVVLLGSL
FSRK -> VRTKELVCPFSLASGORSPALLLYLFLLCWVI
VGDVDS (IN ISOFORM BCL-X(BETA)).

VGDVDS (IN ISOFORM BCL-X(BETA)).

CLEAVAGE BY CASPASE-1 NOR BY
                                                                                                                                                                                                                                                ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alternative splicing; Transmembrane;
                                                                                                                                                                                                         15;
                                                                                                                                                                                                         Score 103; DB
Pred. No. 0.00
15; Mismatches
                                                                                                                                                                                                                                                                                           ACTIVITY.
G->A: NO
G->E: NO
D->A: NO
D->A: NO
                                                                                                                                                                                                                                             WD->GA: REDUCES ANTI-APOPTOTIC ACTIV:
BY ABOUT HALE:
D->A: NO EFECT ON CASPASE-1 CLEAVAGE:
G-> A (IN REF. 1; CAA80661).
; E09D3CDD851AE9BE CRC64;
                                                                                                                                                                                                                  103; DB 1;
No. 0.0054;
                                                                                                                                                                                                                                                                                            NO HETERODIMERIZATION WITH BAX.
NO HETERODIMERIZATION WITH BAX.
NO EFECT ON CASPASE-1 CLEAVAGE.
NO EFECT ON CASPASE-1 CLEAVAGE.
                                    on update)
c isoform
                                                                                   218
                                                                                                                                                                                                                                                                                                                                           SSOT
                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                          OF ANTI-APOPTOTIC
                                      beta
                                                                                                                                                                                                          32;
                                                                                                                                                                                                                          Length 233;
                                                                                                                                                                                                          Indels
                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                    ACTIVITY
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                                                                                                                                                                                                                                      Query Match 11.9
Best Local Similarity 22.7
Matches 34; Conservative
                                                                                                                                                                                                                                                  Apoptosis;
DOMAIN
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DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Oltvai Z.N., Milliman C.L., Korsmeyer S.J.; "BC1-2 heterodimerizes in vivo with a conserved accelerates programmed cell death."; Cell 74:609-619(1993).
                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR002475; BCL2_family.
InterPro; IPR000712; BCl2_BH.
Pfam; PF00452; BCl-2; 1.
SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                          wenew; HGNC:959; BAX.
MIM; 600040;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; L22474; AAA03620.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID~9606;
                                                                                                                                                                                                                                                                                                             PROSITE;
                                                                                                                                                                                                                                                                                                                            PROSITE;
                                                                                                                                                                                                                                                                                                                                             PROSITE;
                                                                                                                                                                                                                                                                                                                                                           PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             HSSP; Q07817;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PIR; B47538; B47538.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-93364978;
131
                             102
                                                       71
                                                                                      76
                                                                                                                 13
                                                                                                                                              22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE SPECIFICITY: EXPRESSED IN A WIDE VARIETY OF TISSUES.

DOMAIN: INTACT BH3 DOMAIN IS REQUIRED BY BIK, BID, BAK, BAD ANI
BAX FOR THEIR PRO-APOPTOTIC ACTIVITY AND FOR THEIR INTERACTION
WITH ANTI-APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.

APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.

APOPTOTIC MEMBERS OF THE BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HOMOLOG EIB 19K PROTEIN.
SUBUNIT: FORMS HOMODIMERS AND HETERODIMERS TOGETHER WITH BCL-2,
EIB 19K PROTEIN, BCL-X(L), MCL-1 AND A1.
SUBCELLULAR LOCATION: Cytoplasmic.
SUBCELLULAR LOCATION: Cytoplasmic ISOFORM ALPHA AND THE THREE
ALTERNATIVE PRODUCTS: THE MEMBRANE ISOFORM ARE GENERATED BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FUNCTION: ACCELERATES PROGRAMMED CELL DEATH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CYTOPLASMIC ISOFORMS, BETA, ALTERNATIVE SPLICING.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ANTAGONIZING THE APOPTOSIS
                                                                                                                                     PTDKELVAQAKALGRE-YVHARLLRAGLSWSAPERA-SPAP-GGRLAEVCTVLLRLG---
ELIRTIMGWTLDFLRERLLGWIQDQGGWVRLLK
                           AMVHALVDCLGEFVRKTLATWLRRRGGWTDVLK
                                                       DSNMELQRMIAAVDTDSPREVFFRVAADMFSDGNFNWGRVVALFYFASKLVLKALCTKVP
                                                                                                                   PTSSEQIMKTGALLLQGFIQDRAGRMG--GEAPELALDPVPQDASTKKLSECLKRIGDEL
                                                                                                                                                                                                                                                                                                             PS50062; BCL2_FAMILY; 1.
                                                                                                                                                                                                                                                                                                                            PS01258; BH2; 1
PS01259; BH3; 1
                                                                                                                                                                                                                                                                                                                                                         PS01080; BH1; 1.
                                                                                                                                                                                                                                   59
98
150
218 AA;
                                                                                                                                                                                                                                                  Alternative splicing. 59 73 BH3 98 118 BH1 150 165 BH2
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                                                                                                                                                                                                                                                                                                                                                                                                                                                               1MAZ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PubMed=8358790;
                                                                                                                                                                                                                                    24220 MW;
                                                                                                                                                                                         11.5%;
22.2%;
                                                                                                                                                                            25;
                                                                                                                                                                     Score 101; DB 1; LC. Pred. No. 0.0078; Pred. No. 52;
                                                                                                                                                                                                                       BH2.
; F69DCD70F960192F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REPRESSOR BCL-2
                                                                      --ITWGKVVSLYSVAAGLAVDCVRQAQP 101
                             134
163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              There are no restrictions ng as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OR
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                                                                                                                                                                                                    Length
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ITS ADENO
                                                                                                                                                                            Indels
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                                                                                                                                                                                                         218;
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                                                                                                                                                                            42;
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BCLW_MOUSE
BCLW_MOUSE
AC P70345;
DT 01-NOV-1997
DT 01-NOV-1997
DT 15-JUN-2002
DE APOPTOSIS re
GN BCL1212 OR BGC
GN BCL1212 OR BGC
GN BCL1212 OR BGC
OS Mus musculus
OC MUS MUSCULUS
OC MARMATIA; EN
OX NCBL_TAXID=1
RN [1]
RN GIDSON L., I
RN 
       Best Local
Matches
                              Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                             MGD; MGI:108052; Bc1212.
InterPro; IPR002475; Bc12_fami
InterPro; IPR000712; Bc12_BH.
InterPro; IPR00393; Bc12_BH4.
Pfam; PF00452; Bc1-2; 1.
Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAIN-C57BL/10J;
STRAIN-C57BL/10J;
MEDLINE-98160183; PubMed-9500547;
MEDLINE-98160183; PubMed-9500547;
ROSS A.J., Waymire K.G., MoSS J.E.,
Pussell L.D., Macgregor G.R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the European Bioinformatics Institute. The use by non-profit institutions as low modified and this statement is not removed. entities requires a license agreement (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gibson L., Holmgreen S.P., Huang D.C., Bernard O., Copeland N.G., Jenkins N.A., Sutherland G.R., Baker E., Adams J.M., Cory S.; "bcl-w, a novel member of the bcl-2 family, promotes cell survival."; Oncogene 13:665-675(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
MEDLINE-96358615; PubMed-8761287;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mus musculus (Mouse).
Eukaryota; Metazoa; C
Mammalia; Eutheria; R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                    SMART; SM00337; BCL; SMART; SM00265; BH4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Apoptosis regul
BCL2L2 OR BCLW
                                                                                                                                                                                                                             PROSITE; PS50063;
                                                                                                                                                                                                                                                                                                PROSITE; PS01080; BH1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; U59746; AAB09056.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Testicular degeneration in Bclw-deficient mice.";
Nat. Genet. 18:251-256(1998).
-i- FUNCTION: PROMOTES CELL SURVIVAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN. SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUBCELLULAR LOCATION: Cytoplasmic.
TISSUE SPECIFICITY: EXPRESSED IN ALMOST ALL MYELOID CELL
IN A WIDE RANGE OF TISSUES, WITH HIGHEST LEVELS IN BRAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DOMAIN: BH4 DOMAIN SEEMS TO BE INVOLVED IN THE ANTI-APOPTOTIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AND SALIVARY GLAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q07817;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AF030769; AAB86430.1; -.
     27; Conser
                                                                                                                                                                                                                                                       PS01258;
PS01260;
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                                                                                          136
193
     Conservative
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                                                                                                    ΑA;
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                                                                        29
104
151
20790 k
                                                                                                                                                                                                                           BH4_2;
                                                                                                                                                                                                                                                                            вн2;
                                                                                                                                                                                                                                                                                                                             BCL2_FAMILY; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Chordata;
Rodentia;
                            11.4%;
24.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bc12_BH4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BCL2_family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .'
                                                                                                    MW;
     19;
Score 100; DB 1;
Pred. No. 0.0086;
9; Mismatches 63
                                                                                                                           BH2
                                                                                                                                                     BH4
BH1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Craniata; Vertebrata; Euteleostomi;
Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                 36CA185F5945DFB4 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Parlow A.F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (See http://www.isb-sib.ch/announce/
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     63;
                                              Length 193;
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                                                                                                                                 LERO0303; BC12_BH.

LEPTO; IPRO04723; BC12_Teg.

Pfam; PF00452; BC12_Teg.

Pfam; PF00452; BC1-2; 1.

R Pfam; PF002180; BH4; 1.

TIGREAMS; TIGRO0865.

PROSITE; PS011^^
Query Match
Best Local S
Matches 17
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Q91828;
Q1-NOV-1997
Q1-NOV-1997
                                                      TRANSMEM
SEQUENCE
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                                                                                                                                                                                                                                                                                     EMBL; X82461; CAA57844.1; -. HSSP; Q07817; 1MAZ.
                                                                                                                                                                                                                                                                                                                            use by non-profit institutions as long modified and this statement is not removed: entitles requires a license agreement (See or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                 IF FUNCTION: CONFERS STRONG PROTECTION AGAINST CELL DEATH.

1. SUBCELLULAR LOCATION: Membrane-bound (Potential).

1. DEVELOPMENTAL REGULATION ONLY OCCURS IN BRAIN OF MID-METAMORPHOSIC TO POST-METAMORPHOSIC TADPOLES AN BRAIN OF MID-METAMORPHOSIC TO POST-METAMORPHOSIC TADPOLES ANDULTS, WHERE AN INCREASE OF SEVERAL FOLD HAS BEEN OBSERVED.

1. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

1. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

1. SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "Cloning, characterization and expression of cell-survival genes.";
Gene 158:171-179(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleost
Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence u
15-JUN-2002 (Rel. 41, Last annotation
Apoptosis regulator R11 (XR11).
Xenopus laevis (African clawed frog).
                                                                                                                       PROSITE; PS01258; BH2; 1.
PROSITE; PS50062; BCL2_FAMILY; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cruz-Reyes
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                                                                                 DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE=95331613; PubMed=7607538;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Xenopodinae;
                                                                                               DOMAIN
                                                                                                            Apoptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=8355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  96
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 l Similarity
17; Conserv
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152
181
204
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                                                                                                            Transmembrane.
 Conservative
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                                                      ĀΑ;
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23379 1
              11.3%;
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                                                       WW;
 15;
              Score 99;
Pred. No.
Pred. No. 0.01
5; Mismatches
                                                    POTENTIAL.
3BFC6BE6DDA4CA03 CRC64;
                                                                                 BH2
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                                                                                                                                                                                                                                                                                                                                          (See http://www.isb-sib.ch/announce/
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0.011;
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 32;
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                         Length 204
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66 EVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125

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Db 97 QVMGELFRDGTNWGRIVAFFSFGRALCVESANKEMTDLLPRIVQWMVNYLEHTLQPWMQE 156
QY 126 RGGW 129
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Db 157 NGGW 160

Search completed: April 29, 2003, 11:23:55
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Maximum |
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Maximum Match 100%
Listing first 45 summaries
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DB seq length: 2000000000
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1: pir1:*
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bcl-2-associated p
BCL-X-Long - rat
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bcl-2-associated p
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C;Species: Rattus norvegicus (Norway rat)
C;Species: Rattus norvegicus (Norway rat)
C;Species: Ray-1998 #sequence_revision 29-May-1998 #text_change 16-Jul-19
C;Accession: I53744
R;Sato, T.; Irie, S.; Krajewski, S.; Reed, J.C.
Gene 140, 291-292, 1994
A;Title: Cloning and sequencing of a cDNA encoding the rat Bcl-2 protein.
A;Reference number: I53744; MUID:94193015; PMID:8144041
A;Accession: I53744
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-236 <RES>
A;Cross-references: GB:L14680; NID:9408946; PIDN:AAA53662.1; PID:9408947
A;Cross-references: GB:L14680; NID:9408946; PIDN:AAA53662.1; PID:9408947
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ALIGNMENTS

#text_change 16-Jul-1999

RESULT TVHUA1 transf C:Spec C:Spec C:Acce R:Eguc Nuclei A:Titl A:Titl A:Refe A:Acce	Qy dd	ОУ	Qy Db	Ob	Que Bes Mat	C; Sup
RESULT 2 TVHUA1 TVHUA1 C:Species: Homo sapiens (man) C:Species: Homo sapiens (man) C:Date: 31-Dec.1988 #sequence_revision 07-Jun-1996 #text_change 15-Oct-1999 C:Accession: C37332; A29409; S02452; A24428; A27622; B27622 C:Accession: C37332; A29409; Tsujimoto, Y. Nucleic Acids Res. 20, 4187-4192, 11992 A;Title: Isolation and characterization of the chicken bcl-2 gene: expression in a va A; Recession: C37332 A;Accession:	118 TLATWLRRRGGWIDVLKCV-VSTDPGPRSHWL-VATLCS 154	62GRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRK 117	62	28 VAQAKALGREYVHARLLRAGLSWSAPERASPAPG	Query Match 15.3%; Score 134; DB 2; Length 236; Best Local Similarity 20.5%; Pred. No. 7.7e-06; Matches 45; Conservative 24; Mismatches 58; Indels 92; Gaps	C;Superfamily: bcl transforming protein

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RESULT 3
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BCL-2 - 1
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Cell 47, 19-28, 1986
A;Title: Cloning and structural analysis of cDNAs for bcl-2
A;Reference number: A24428; MUID:87002488; PMID:2875799
A;Accession: A24428...
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C; Keywords: alternative
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A;Cross-references:
A;Map position: 18q2
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A;Residues: 1-6,'S',8-58,'T',60-128,'C',130-239 <HUA2>
A;Residues: the sequence was determined from the germline gene
A;Note: the sequence was determined from the following t(14:18)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Residues: 1-58,'T',60-116,'R',118-239 <CLE>
A;Cross-references: GB:M14745; NID:g179370; PIDN:AAA35591.1;
R;Hua, C.; Zorn, S.; Jensen, J.P.; Coupland, R.W.; Ko, H.S.;
Oncogene Res. 2, 263-275, 1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: mRNA
A; Residues: 1-95, 'A', 97-109, 'G', 111-236, 'S', 238-239 <TSU>
A; Residues: 1-95, 'A', 97-109, 'G', 111-236, 'S', 238-239 <TSU>
A; Cross-references: GB:M13994; NID:g179366; PIDN:AAA51813.1; P
A; Note: this sequence has been corrected in reference A37332
R; Seto, M.; Jaeger, U.; Hockett, R.D.; Graninger, W.; Bennett,
EMBO J. 7, 123-131, 1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Note: this report is a correction R;Tsujimoto, Y.; Croce, C.M.
Proc. Natl. Acad. Sci. U.S.A. 83, 5214-5218, 1986
A;Title: Analysis of the structure, transcripts, and protein A;Reference number: A29409; MUID:86259760; PMID:3523487
A;Accession: A29409
  C; Species:
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A; Residues: 1-58, 'T',
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Title: Alternative promoters and exons, somatic mutation A; Reference number: S02452; MUID:88196071; PMID:2834197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Molecule type: mRNA
A; Residues: 1-58, 'T', 60-239 <HUA>
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Residues: 1-239 <EGU>
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                     rat (fragment)
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Pred. No. 2e-05;
5; Mismatches
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A; Gene: bcl-2
C; Superfamily: l
C; Keywords: B-ce
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A:Contents: Ovary
A:Accession: JC7383
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C;Accession: 167432
R;Tilly J.L.; Tilly, K.I.; Kenton, M.L.; Johnson, A.L.
Endocrinology 136, 232-241, 1995
A;Title: Expression of members of the bcl-2 gene family in the immature rat onstitutive bcl-2 and bcl-xlong messenger ribonucleic acid levels.
A;Reference number: 153295; MUID:95129487; PMID:7928336
A;Accession: 167432
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C;Species: Cricetulus griseus (Chinese hams
C;Date: 17-Nov-2000 #sequence_revision 17-Nov-2000 #sequence_revisi
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A; Residues: 1-236 < TOM>
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                                                     {\tt FTARGREAT} VV {\tt EELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNR}
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Pred. No. 2.7
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transforming protein bcl-2; splice form beta - human
N.Alternate names: apoptosis regulator bcl-2
C.Species: Homo sapiens (man)
C.Date: 31-Dec-1988 #sequence_revision 31-Dec-1988 #text_change 15-Oct-1999
C.Accession: B29409; I52566; D37332
R.Tsujimoto, Y.; Croce, C.M.
Proc. Natl. Acad. Sci. U.S.A. 83, 5214-5218, 1986
A.Title: Analysis of the structure, transcripts, and protein products of bcl
A.Reference number: A29409; MUID:86259760; PMID:3523487
A.Accession: B29409
A; Molecule type: mRNA
A; Residues: 1-205 <TSU>
A; Cross-references: GB:M13995; NID:g179368; PIDN:AAA51814.1; PID:g179369
R; Tanaka, S.; Louie, D.C.; Kant, J.A.; Reed, J.C.
Blood 79, 229-237, 1992
A; Title: Frequent incidence of somatic mutations in translocated BCL2 oncogenes of A; Reference number: 152566; MUID:92096610; PMID:1339299
A; Accession: 152566
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C;Superfamily: bcl transforming protein
C;Keywords: alternative splicing; mitochondrion; transforming protein; transmembrane
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A;Gene: BCL2
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A;Residues: 1-33,'E',34-220,'AL',223-236 <EGU>
C;Genetics:
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A; Residues: 1-236 < NEG>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181 HLHTWIQDNGGWDAFVELYGPSMRPLFDFSWLSLKTLLS 219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               118 TLATWLRRRGGWTDVLKCV-VSTDPGFRSHWL-VATLCS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121 FTARGRFATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNR 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 VHREMAARTSPLRPLVATAGPALSPVPPCVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28 VAQAKALG....-REYVHARLLRAGLSW-----SAPERASPAPG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Match 14.5%; Score 127; DB 1; I
Local Similarity 19.6%; Pred. No. 3.9e-05;
les 43; Conservative 26; Mismatches 58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDAGDADAAPLGAAPTPGIFSFQPESNPMPA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----GRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRK 117
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                                                                                                                                                                                                                                                                                                                           products of bcl-2,
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                                 ДD
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	A:Status: translated from GB/EMBL/DDBJ	
	A;Molecule type: DNA A;Residues: 1-131 <tan></tan>	
	erences: GB:S72602; NID:g24	
	7 Exert, D.E., Isujanoto, I. Acids Res. 20, 4187-4192, 1992 Teolation and Characterization of the chioken bol-2 dono. Controlsion in a	2
	A;Reference number: A37332; MUID:92375724; PMID:1508712 A:Accession: N37332	Ā
	Status: prelim	
romo l	A;Residues: 1-33,'E',34-95,'T',97-109,'R',111-205 <egu> C;Genetics:</egu>	
	Gene Cross	
<u>.</u>		.,
/arie	Query Match 14.2%; Score 125; DB 1; Length 205; Best Local Similarity 17.9%; Pred. No. 5.3e-05; Matches 32; Conservative 22; Mismatches 39; Indels 86; Gaps 2;	
	Qy 37 EYVHARLLRAGLSWSAPERASPAPG	
prc	Qy 62GRLAEVCTV 70	
	Qy 71 LLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW 129 	
	protein bcl-2-beta - mouse s musculus (house mouse) c-1988 #sequence_revision 31- 825960	
		ū
	A; Gene: BCL2 C; Superfamily: bcl transforming protein C; Keywords: alternative splicing; transforming protein Query Match 14.1%; Score 124; DB 1; Length 199;	
gene	28 VAQAKALGSAPE 1	
	Qy 62 61	
	Db 61 VHREMAARTSPLRPLVATAGPALSPVPPCVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120	
non - H	y 62GRLAEVCTVLLRIGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRK 1	
	DE 131 EMANCHER EDUCKARION TWANTED CONTOUR CONTINUES IN 100	

185 NGGWVRTKPLVCPFSLASGQRS

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JE0203
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A;Title: Identification of a human cDNA encoding a novel bcl-x isoform. A;Reference number: JE0203; MUID:98340865; PMID:9675101
A;Accession: JE0203
                                                                                                                                                                                                                                                                                                                                                                                                                                           apoptosis regulator bcl-x isoform - human
N;Alternate names: h-bcl-xbeta
C;Species: Homo sapiens (man)
C;Date: 21-Aug-1998 #sequence_revision 21-Aug-1998 #text_change 16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            transforming protein (bcl-2-beta) - chicken
(;Species: Gallus gallus (chicken)
(;Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change
(;Accession: B37332; S35452
R;Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y.
Nucleic Acids Res. 20, 4187-4192, 1992
A;Title: Isolation and characterization of the chicken bcl-2 gen
A;Reference number: A37332; MUID:92375724; PMID:1508712
A;Accession: B37332
                                                                                                                                                                                                       A; Map position:
C; Superfamily: 1
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                                                                                                                                                                                                                                                                 C; Genetics
                                                                                                                                                                                                                                                                              A;Cross-references: GB:U72398;
                                                                                                                                                                                                                                                                                                   A; Residues: 1-227 <BAN>
                                                                                                                                                                                                                                                                                                                     A; Molecule type: mRNA
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A; Residues: 1-216 <EGU>
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126 RGGW--TDVLKCVVSTDPGFRS 145
                                                    125 QVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIAAWMATYLNDHLEPWIQE 184
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                                                                                       EVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HNWIQDNGGWVRACASLSST----GGWLV 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATWLRRRGGWTDVLKCVVSTDPGFRSHWLV 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AHGRFVAVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIATWMTEYLNRHL 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           \tt HHRPEPPGSAAASEVPPAEGLRPAPPGVHLALRQAGDEFSRRYQRDFAQMSGQLHLTPFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RGYDNREIVL-----KYIHYKLSQRGYDWAAGEDRPPVPPAPAPAAAPAAVAAAGASS 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HLHTWIQDNGGW--VGACLV 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -GGRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTL
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                                                                                                                                               Similarity
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bcl
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                                                                                                                               Conservative
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                                                                                                                                                                                                   transforming protein
                                                                                                                                         13.0%; Score 114; DB 2; 29.3%; Pred. No. 0.00074;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13.4%;
16.7%;
                                                                                                                                                                                                                                                                              NID: g1622940; PIDN: AAB17354.1;
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                                                                                                                               15;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 118; DB 2;
Pred. No. 0.00028;
5; Mismatches 58;
                                                                                                                               Mismatches
                                                                                                                                                                Length 227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 216;
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C; Superfamil
C; Keywords:
                                                                   A; Introns: 125, C; Superfamily:
                                                                                                                                                                                                                                                                                                                                                                                                               C;Species: Rattus norvegicus (Norway rat)
C;Date: 07-May-1995 #sequence_revision 01-Sep-1995
C;Date: 07-May-1995 #sequence_revision 01-Sep-1995
C;Accession: 51761; S51762
                                                                                                                                                                                                                                                                                                                                                                  submitted to the EMBL Data A; Reference number: S51761
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                                                                                                                          A; Experimental source: embryonic; br. A; Note: smaller form due to splicing
                                                                                                                                                              A; Residues: 1-125,189-233 <MI2>
A; Cross_references: EMBL: X82537; NID: g607176; PIDN: CAA57887.1;
                                                                                                                                                                                                                                     A; Experimental source: A; Accession: S51762
                                                                                                                                                                                                                                                                                          A; Molecule type: DNA
A; Residues: 1-233 <MIC>
                                                                                                                                                                                                                                                                                                                                               A; Reference number: A; Accession: S51761
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                                                                                                                                                                                                   A; Molecule type: DNA
                                                                                                                                                                                                                    A; Status: preliminary
                                                                                                                                                                                                                                                                   A;Cross-references: EMBL:X82537; NID:g607176; PIDN:CAA57886.1; PID:g607177
                                                                                                                                                                                                                                                                                                                              A; Status: preliminary
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BCL-X protein
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A; Residues: 1-233 <EGU>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             transforming protein (bcl-2-alpha) - chicken
C;Species: Gallus gallus (chicken)
C;Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change 23-Feb-1997
C;Accession: A37332; S35453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Introns: 189/3
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     Matches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    120 ATWLRRGGWTDVLKCV-VSTDPGFRSHW------LVATLCSFGRFL
 Local Similarity
nes 33; Conser
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HHRPEPPGSAAASEVPPAEGLRPAPPGVHLALRQAGDEFSRRYQRDFAQMSGQLHLTPFT 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RGYDNREIVL-----KYIHYKLSQRGYDWAAGEDRPPVPPAPAPAAAPAAVAAAGASS 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -GGRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTL 119
                                                                                          125/3
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                                                                         bcl
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 Conservative
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                                                                   transforming protein
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                                                                                                                                                                                                                                                      embryonic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12.9%;
16.5%;
               12.18;
17.08;
                                                                                                                                                                                                                                                                                                                                                                                 Library, November
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 25;
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               Score 106; DB 2;
Pred. No. 0.0048;
                                                                                                                                           brain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 113;
Pred. No. 0.
                                                                                                                                                                                                                                                        brain
Mismatches
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PMID:1508712
                                     DB 2;
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es 67;
 44;
                                                                                                                                                                                                                                                                                                                                                                                                                                     #text_change 02-Mar-2001
                                 Length 233;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 233;
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                                                                                                                                                              PID: g607178
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apoptosis regulator bcl-x - chicken C;Speciles: Gallus gallus (chicken) C;Speciles: Gallus gallus (chicken) C;Date: 03-May-1994 #sequence_revision 03-May-1994 #text_change 16-Jul-1999 C;Accession: A47537 R;Boise, L.H.; Gonzalez-Garcia, M.; Postema, C.E.; Ding, L.; Lindsten, T.;
                                                                                                                                                                                                                                                                     bcl-x transmembrane deleted - mouse
C;Species: Mus musculus (house mouse)
C;Date: 02-Jul-1996 #sequence_revision 02
C;Accession: 149057
R;Fang, W.; Rivard, J.J.; Mueller, D.L.;
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A; Cross-references: GB:Z23110; GB:L20120
C; Superfamily: bcl transforming protein
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Title: bcl-x, a bcl-2-related gene that functions as a dominant regulator of apoptoti A;Reference number: A47537; MUID:93364977; PMID:8358789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                к; Bolse, L.H.; Gonzalez-Garcia, M.; Postema, Cell 74, 597-608, 1993
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                                                                                                                     A; Cross-references:
                                                                                                                                     A; Molecule type: mRNA
A; Residues: 1-214 < RES>
                                                                                                                                                                                              A;Reference number: I49055; MUID:95052604; PMID:7963517 A;Accession: I49057
                                                                                                                                                                                                                                    A; Title: Cloning and molecular characterization of mouse
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A; Molecule type: DNA
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                    Query Match
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       116 RKTLATWLRRRGGW 129
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         123 LRRRGGW 129
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Local Similarity
                                                        bcl-x-long
family: bcl
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           66 VHRSSLEVHEIVRASD------VRQALRDAGDEFELRYRRAFSDLTSQLHITPGTAYQ 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATYL
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                                                        transforming protein
                                                                                                                   EMBL:U10102; NID:g506649; PIDN:AAA82174.1; PID:g506650
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26
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Score 105; DB 2; Pred. No. 0.0055;
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                                                                                                                                                                                                                                                                             T.W.
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                  Length 214;
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RSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP-

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bcl-x long - mouse
C;Species: Mus musculus (house mouse)
C;Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 16-Jul-1999
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A;Cross references: EMBL:U10101; NID:g506647; PIDN:AAA82173.1;
A;Cross references: EMBL:U10101; NID:g506647; PIDN:AAA82173.1;
R;Kamesaki, H.; Michaud, G.Y.; Takatsu, K.; Okuma, M.
submitted to the EMBL Data Library, November 1994
A;Description: IL-5 inhibits anti-IgM-induced apoptosis in an i
                                                                                                                                                                                                                                                                                                            transforming protein (Bcl-2) homolog - chicken C; Species: Gallus gallus (chicken) C; Date: 13-Jan-1995 #sequence_revision 13-Jan-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qγ
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C;Superfamily: bcl transforming
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                                                                                                                                                                                                                                 R;Cazals-Hatem, D.L.; Louie, D.C.; Tanaka, S.; Reed, J.C. Biochim. Biophys. Acta 1132, 109-113, 1992
A;Title: Molecular cloning and DNA sequence analysis of o
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A; Residues: 1-233 <KAM>
                                                                          A;Cross-references: EMBL:Z11961; NID:g62969; PIDN:CAA78018.1; PID:g62970 C;Superfamily: bcl transforming protein C;Keywords: mitochondrion; transmembrane protein
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A;Accession: S52866
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A; Residues: 1-233 < RE
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A; Residues: 1-232 <CAZ>
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                    Query Match .
Best Local S:
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  . Similarity 37; Conser
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                    11.98;
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Pred. No. 0.006;
                  Score 104.5; DB Pred. No. 0.0068
                                                                                                                                                                                                                 sequence analysis of 2379084; PMID:1511008
  Mismatches
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  4.
                                                                                                                                                                                                                                   homolog
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ф	7	:: : : : :	
Qy	61	60	
рь	60	60 HHRPSPPARLLLVRCPRLRGCAAPPGVHLALRQAGDEFSRRYQRDFAQMSGQLHLTPFTA 119	9
Qy	61	61 GGRLAEVCTVLLRIGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLA 120	S
ф	120	120 TGRFVAVVEELFRDGVNWVRIVAFFEFGGVMCVESVNREMSPLVDNIATWMTEYLNRHLH 179	w
Qy	121	121 TWLRRRGGWTDVLKCV-VSTDPGFRSHWLVATLCSFGRFL 159	
ф	180	180 NWIQDNGGWDAFVELYGNSWRPLFDFSWISLKTILSLVLVGACITLGAYL 229	
Searc	h com	Search completed: April 29, 2003, 11:26:35 Job time : 12.6527 secs	

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Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Total number of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Run
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                                                                               860
846.5
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878
                                                                                                                                                                            Match
                                                                                                                                                                                           Query
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   99.2
97.9
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l: /SIDS2/qcqdata/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEVLRRSSVFAAEIMDAFDR.....TLCSFGRFLKAAFFLLLPER 170
                                                                                                                                                                                                                                                                                                                /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1991.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1992.DAT:*
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/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA20000.DAT:*
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/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2001.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2002.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
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/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1990.DAT:*
                                                                                                                                                                                                                                                      number of results predicted by chance to have a n or equal to the score of the result being printed, analysis of the total score distribution.
                                                                                                                                                                             DB
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AAY14154
AAY14155
AAY14155
AAB41444
AAB85665
AAB85665
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ABB63760
ABB64401
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                                                                                                                                                                                                                            SUMMARIES
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872.393 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   908470
              Human Bcl-2-like p
Breast and ovarian
Drosophila melanog
Drosophila melanog
                                                                                                                                                                        Description
                                                             Human ORFX ORF1208
Human Bcl-2-like p
                                                                                            Rat Bok protein se
Human Bok protein
                                                                                                                            Human
                                                                                                                                         Rat Bok protein se
                                                                                                                            Bok protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hsu SY,
                                                                                                                          07-NOV-1997;
                                                                                                                                                          04-NOV-1998;
                                                                                                                                                                                           20-MAY-1999.
                                                                                                                                                                                                                        W09924453-A1
                                                                                                                                                                                                                                                      Rattus rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAY14154;
                                                                                         (STRD )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        131
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N	Ν	\sim	N	٠	25	N	N	N	N	127	N	N	N	ω	ω	ω	ω	ω	ω	ω	ω	ω	ω	ω	ω	ω	ω	ω	ω	ω	ω	130	ω	131
4.	٠	4.	٠.		4.	4.		4.	4.	4		4.	4.	4.	4.	4.	4.	4	4.	4.	4	٠.	4.	4.	٠	4	٠		4	٠.	٠	14.8	4	4.
0	0	0	0	ω	ω	w	ω	w	ω	w	2	N	ω	7	w	ω	w	ω	w	ω	ω	ω	w	w	ω	ω	ω	w	ω	ω	ω	239	ω	ω
18	16	16	16	20	17	15	23	22	22	20	20	17	22	19	23	23	23	22	22	22	22	22	22	22	22	20	20	19	16	16	14	9	22	
3	AAR71405	m		AAW94347	AAW01020		AAU76554	AAB35131	AAB74128	AAW87811	AAW94348	. AAW01021	AAG64039	AAY21120	ABB05227	AAU76553	ABB75986	AAB50537	AAB35130	AAB48288	AAB74129	AAB74127	AAG64037	AAG64035	AAE08573	AAW87812	AAW87810	AAW40217	AAR71404	AAR70331	AAR42312	AAP80987	6403	AAG64036
n anti-a	beta	thymus BCL-	bc1-2	2	Apoptosis-blocking	oncogene bc	Bc1-2 pc	Bcl-2.	e bcl-2.	ine Bcl	n Bcl-	osis-bl	1-2	bcl2 proto-	D34A caspas	Bc1-2	ein sequence.	Bcl-2 pr	n Bcl-2. Hom	BCL-2 p	bcl-2alp	bcl-2. Hom	Bcl-2 prote	n Bcl-2 prote	uman Bcl-2 pr	human Bcl-2-alp	man Bcl-2	bc1-2.	bcl-2 alpha	n bcl-ž pro	oncogene	nce of bcl-2-	n Bcl-2 prote	Human Bcl-2 protei

ALIGNMENTS

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RESULT 1
AAAY14154
AAY14154
AC AAY7
XX AAY7
AC AAY7
XX AAY7
DT 27---
XX Bok
KW Proo
KW
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                                                     N-PSDB; AAX61104.
                                                                                                           WPI; 1999-327356/27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      proliferative disorder; rat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ovarian carcinoma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Rat Bok protein sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAY14154 standard; Protein; 170 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         27-JUL-1999 (first entry)
                                                                                                                                                                                                                                                                                                            UNIV LELAND STANFORD JUNIOR
                                                                                                                                                                                                      Hsueh AJW;
                                                                                                                                                                                                                                                                                                                                                                                                             97US-0064943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   98WO-US23523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            glandular epithelial carcinoma; cancer;
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Homo

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В
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Best Local :
                    Hsu SY,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein can be used to elucidate apoptosis mechanisms in reproductive and other tissues, and provide a means for manipulating apoptosis. The Bok protein and transgenic animal are also useful for identifying ligands or substrates. Modulation of the gene activity in vivo is useful for prophylaxis and therapy of, e.g. cancer and other proliferative disorders. Bok genes are also useful for identification of cell type based on expression. Identification of Bok as a new pro-apoptotic protein with wide tissue distribution and heterodimerisation properties
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein, of the invention. Coding sequences for Bok or BH3i variants of pro-approtic Bok-related protein can be introduced into cell populations to upregulate expression of the proteins in order to induce approtosis in the cell population. This is useful for treatment of diseases where there is hyperproliferation of reproductive tissue, e.g. uterine, testicular and ovarian carcinomas, endometricosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-approtoic Bol-2 proteins. The Bok protein and be suppressed by co-expression with selective anti-approtoic Bol-2 proteins. The Bok
                                                                                                           07-NOV-1997;
                                                                                                                                                       04-NOV-1998;
                                                                                                                                                                                                                                                                                                                                                   Bok protein; Bcl-2-related ovarian killer; BH3i variant; endometriosis; pro-apoptotic protein; apoptosis inducer; hyperproliferation disease; reproductive tissue; uterine carcinoma; testicular carcinoma; cervix; ovarian carcinoma; glandular epithelial carcinoma; cancer; therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAY14156 standard; Protein; 170 AA
                                                              (STRD )
                                                                                                                                                                                                   20-MAY-1999
                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                   proliferative
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human Bok protein sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         facilitates elucidation of apoptosis mechanisms.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mammalian Bok (Bcl-2-related protein and its related gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEVLRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TWLRRRGGWTDVLKCVVSTDPGFRSHWLVATLCSFGRFLKAAFFLLLPER 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEVLRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TWLRRRGGWWDVLKCVVSTDPGFRSHWLVATLCSFGRFLKAAFFLLLPER
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169; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2;
                                                                UNIV LELAND STANFORD JUNIOR.
                      Hsueh AJW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                   disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    is a mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             54-55; 62pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ΑA;
                                                                                                           97US-0064943
                                                                                                                                                       98WO-US23523
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 871; DE Pred. No. 7.3e 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bok (Bcl-2-related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ovarian killer), a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 20;
.3e-93;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ovarian killer)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 170;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
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                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity Matches 167; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            and ovarian carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic Bcl-2 proteins. The Bok protein can be used to elucidate apoptosis mechanisms in reproductive an other tissues, and provide a means for manipulating apoptosis. The Bok protein and transgenic animal are also useful for identifying ligands or substrates. Modulation of the gene activity in vivo is useful for prophylaxis and therapy of, e.g. cancer and other proliferative disorders. Bok genes are also useful for identification of cell type based on expression. Identification of Bok as a new pro-apoptotic protein with wide tissue distribution and heterodimerisation properties
                                                                                                                                                                                                                                   Bok protein; Bcl-2-related ovarian killer pro-apoptotic protein; apoptosis inducer; reproductive tissue; uterine carcinoma; to
                                                                                                                                                                                                                                                                                                        Rat
                                                                                                                                                                                                                                                                                                                                                                                                           AAY14153 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This sequence is a mammalian Bok (Bcl-2-related ovarian killer) protein, of the invention. Coding sequences for Bok or BH3i variants of pro-apoptotic Bok-related protein be introduced into cell populations to upregulate expression of the proteins in order to induce apoptosis in the cell population. This is useful for treatment of diseases where there is hyperproliferation of reproductive tissue, e.g. uterine, testicular
                                                                                                                                                                     Rattus rattus
                                                                                                                                                                                                                                                                                                                                          27-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                          AAY14153;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim
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                                                                                                                                                                                                                                                                                                      Bok protein sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEEVRKTLA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TWLRRRGGWTDVLKCVVSTDPGFRSHWLVATLCSFGRFLKAAFFLLLPER 170
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2;
                                                                                                                                                                                                                   carcinoma;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     170 AA;
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                                                                                                                                                                                                   noma; glandular epithelial carcinoma;
disorder; rat.
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                                                                                                                                                                                                                                                                                                                                                                                                           Protein;
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98.2%;
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Pred. No. 1.4e-91;
0; Mismatches 3;
                                                                                                                                                                                                                                                                   killer;
                                                                                                                                                                                                                                    testicular carcinoma; cervix;
                                                                                                                                                                                                                                                    ; BH3i variant; endometriosi
hyperproliferation disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 170,
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04-NOV-1998; 20-MAY-1999

(STRD) UNIV

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CC protein, of the invention. Coding sequences for Bok or BH3i variants of protein can be introduced into cell populations
CC to upregulate expression of the proteins in order to induce apoptosis in CC the cell population. This is useful for treatment of diseases where there CC is hyperproliferation of reproductive tissue, e.g. uterine, testicular cardinomas, endometriosis, squamous and glandular epithelial cardinomas of the cervix. Cell killing induced by Bok can be suppressed CC by co-expression with selective anti-apoptotic Bcl-2 proteins. The Bok CC protein can be used to elucidate apoptosis mechanisms in reproductive and CC other tissues, and provide a means for manipulating apoptosis. The Bok CC protein and transgenic animal are also useful for identifying ligands or CC substrates. Modulation of the gene activity in vivo is useful for CC prophylaxis and therapy of, e.g. cancer and other proliferative CC disorders. Bok genes are also useful for identification of cell type based on expression. Identification of Bok as a new pro-apoptotic protein control of the control of apoptosis mechanisms.
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Best Local
                                                                                                                                                                                                                                Bok protein; Bcl-2-related ovarian killer; BH3i variant; endometriosis; pro-apoptotic protein; apoptosis inducer; hyperproliferation disease;
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                                                                                                                                                                      reproductive tissue; uterine carcinoma; ovarian carcinoma; glandular epithelial
                                                                                                                                                                                                                                                                                                                    Human Bok protein sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                        AAY14155
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                                 WO9924453-A1
                                                                                    Homo sapiens
                                                                                                                                              proliferative
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                                                                                                                                                 disorder; human
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79.8%;
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Pred. No. 6.9e-90;
0; Mismatches C
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                                                                                                                                                                         testicular carcinoma; carcinoma; carcinoma;
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RESULT 5
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CC protein, of the invention. Coding sequences for Bok or BH3i variants of protein, of the invention. Coding sequences for Bok or BH3i variants of protein can be introduced into cell populations to upregulate expression of the proteins in order to induce apoptosis in the cell population. This is useful for treatment of diseases where there is hyperproliferation of reproductive tissue, e.g. uterine, testicular and ovarian carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic Bcl-2 proteins: The Bok protein can be used to elucidate apoptosis mechanisms in reproductive and other tissues, and provide a means for manipulating apoptosis. The Bok protein and transgenic animal are also useful for identifying ligands or substrates. Modulation of the gene activity in vivo is useful for substrates. Modulation of the gene activity in vivo is useful type based on expression. Identification of Bok as a new pro-apoptotic protein with vide tissue distribution and heterodimerisation properties
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
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                                                                                        08-FEB-2001
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                                                                                                                                                    AAB41444 standard; Protein;
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167; Conserv
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                                                                                        (first entry)
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Pred. No. 8.5e-88;
0; Mismatches 3;
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Human; open reading frame; ORFX; detection; cytostatic; hepatotropic; vulnerary; antipsoriatic; antiparkinsonian; nootropic; neuroprotectiv

psoriatic; antiparkinsonian; osteopathic; antiarthritic;

immunosuppressant; cardiant;

neuroprotective;

nootropic;

Human ORFX ORF1208 polypeptide sequence SEQ

ID NO:2416.

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CC AAC74446 to AAC77606 encode the proteins given in AAB40237 to AAB43397, CC which represent the human ORFX open reading frames 1 to 3161. The ORFX CC sequences have activities such as: cytostatic; hepatotropic; vulnerary; CC antipsoriatic; antiparkinsonian; nootropic; neuroprotective; conteopathic; anticonvulsant; antiarthritic; immunosuppressant; thrombolytic; coagulant; vasotropic; CC antidiabetic; hypotensive; dermatological; immunosuppressive; cc antitinflammatory; antibacterial; antiviral; antifungal; antirheumatic; CC antitinflammatory; antibacterial; antiviral; antifungal; antirheumatic; CC antithyroid; and antianaemic. The sequences can be used for determining the presence of or predisposition to, or preventing or treating cc the presence of or predisposition to, or preventing or treating cc pathological conditions associated with an ORFX-associated disorder. The cnucleic acids can be used to express ORFX proteins in gene therapy cc vectors. The proteins and nucleic acids may be used to treat cancers, craditorascular disease, diabetes mellitus, cc proliferative disorders, neurodegenerative disorders, osteoarthritis, cc proliferative disorders, neurodegenerative disorders, osteoarthritis, cc proliferative disorders, cardiovascular disease, diabetes mellitus. Cc erythematosus, severe combined immunodeficiency (SCID), AIDS, viral, concernial or fungal infection, malaria, autoimmune disorders, asthma, cc concernial themoglobinuria, antiinflammatory disease; to enhance concerniation, antiinflammatory disease; to enhance
                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                 Matches
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02-APR-1999;
05-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                immunostimulant; thrombolytic; coagulant; vasotropic; antidiabetic; hypotensive; dermatological; immunosuppressive; antiinflammatory; antiviral; antiviral; anticorpic; antingal; antirheumatic; antithyroid; antiviral; anticorpic; antiviral; antithyroid; antiviral; anticorpic; cancer; proliferative disorder; hypertension neurodegenerative disorder; osteoarthritis; graft vs host disease; cardiovascular disease; diabetes mellitus; hypothyroidism; SCID; AIDS; cholesterol ester storage; systemic lupus erythematosus; infection; severe combined immunodeficiency; malaria; autoimmune disorder; asthma; allergy; aplastic anaemia; nocturnal haemoglobinuria; burn; wound; bone damage; cartilage damage; antiinflammatory disease; coagulation; thromboglos; cartilage damage; antiinflammatory disease; coagulation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Novel nucleic acids and peptides derived from open reading useful for treating e.g. cancers, proliferative disorders, neurodegenerative disorders and cardiovascular disease -
                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 11; Page 1750–1751; 5507pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Shimkets RA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   05-OCT-2000
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                                                                                                                                                                                                                                                                                                                  coagulation;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                30-MAR-2000;
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    61
                                              61
                                                                                                                                                                                                 Local
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GGRLAEVCAVLLRLGDELEMIRPSVYRNVARQLHISLQSEPVVTDAFLAVAGHIFSAGIT 120
                                                GGRLAEVCTVLLRL---
                                                                                                              MEVLRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP 60
                                                                                       MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP 60
                                                                                                                                                                                                      Similarity
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                                                                                                                                                                               Conservative
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99US-0127636.
99US-0127728.
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                                                                                                                                                                                                                                                                                                                  inhibit thrombosis; and
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77.0%;
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Pred. No. 1.6e-86;
                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                  as
                                                                                                                                                                                                                                                                                                                  a contraceptive.
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                                                                                                                                                                               Indels
                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                           213;
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41 ARLLRAGLSWSAPERASPAPGGRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQ 100

Matches Query Match

Local

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Score 495; DB 22; Pred. No. 2.4e-49; 5; Mismatches 21;

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Gaps

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56.4%; 75.4%;

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                                                                           The invention provides nucleic acid molecules (NAM1) encoding 4 human CC Bc1-2-like polypeptides (PEP1). The NAM1 and PEP1 may be used in the CC prevention, diagnosis and treatment of diseases associated with CC inappropriate Bc1-2-like polypeptides' expression. The NAM1 may be used CC inappropriate Bc1-2-like polypeptides by standard recombinant CC methodolgy. The polypeptides may also be used as antigens in the CC production of antibodies against Bc1-2 and in assays to identify CC modulators of Bc1-2 expression and activity. The anti-Bc1-2 antibodies and anti-PEP1 antibodies may be used to down regulate expression and activity. CC and anti-PEP1 antibodies may also be used as diagnostic agents for CC detecting the presence of Bc1-2 polyps in samples (e.g. by enzyme linked CC immunosorbant assay (ELISA)). Disorders that may be prevented, diagnosed CC and/or treated by the above methods include, inmunodeficienceles (e.g. activities and B cell lymphoproliferative disorder), autoimmune CC disorders (e.g. rheumatoid arthritis and Grave's disease), allergic
                                                  reactions, inflammations, respiratory diseases and cardiovascular disorders (a full list of disorders is given in the specification
                                                                                                                                                                                                                                                                                                                                                                    Claim 12;
                                                                                                                                                                                                                                                                                                                                                                                                 Nucleic acids encoding human {\tt Bcl-2-like} polypeptides, useful for preventing, diagnosing and/or treating -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ruben SM,
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07-FEB-2000;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bc1-2-like polypeptide; autoimmune disorder; allergy; immunomodulatory; respiratory; cardiovascular; antiarthritic; immunostimulant; vaccine; immunosuppressive; antiinflammatory; gene therapy.
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Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (HUMA-) HUMAN GENOME
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
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DB; AAH47021.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WGKVVSLYAVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
                                  sequence represents
                                                                                                                                                                                                                                                                                                                                                                  Page 277-278; 285pp; English.
134
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2000US-0180697.
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                                  a
                              orders is given in the specification). human Bcl-2-like polypeptide.
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                                           antidiabetic; antiinflammatory; antiulcer; vulnerary; anticonvulsant; antidiabetic; antiinflammatory; antiulcer; vulnerary; anticonvulsant; antiborterial; antifungal; antiparasitic and cardiant activity. The polynucleotide and protein sequences are used in the diagnosis of cancer, particularly breast and ovarian cancer. The nucleic acid sequences, proteins, agonists and agonists may also be used in the diagnosis, prevention and treatment of immune disorders e.g. Addison's disease, altergies, autoimmune to firmune disorders e.g. Addison's disease, altergies, autoimmune disorders e.g. Addison's disease, altergies, autoimmune chyricianterial acidence the providities.
                                                                                                                                                                                       invention. The breast and ovarian cancer associated DNA, protein, agonist or antagonist sequences exhibit cytostatic; immunosuppressive; noottopic; neuroprotective; antiviral; antiallergic; hepatotropic;
                                                                                                                                                                                                                                           Sequences AAF21614 - AAF22031 represent DNA sequences encoding human proteins AAF38711 - AAF39128. The DNA and protein sequences are associated with breast and ovarian cancer. Included in the invention are sequences AAF22032 - AAF22040 and AAF39129 which are used in the isolation and characterisation of the DNA and protein sequences of the
                                                                                                                                                                                                                                                                                                                                                                                                   New human breast and ovarian cancer associated gene sequences and the polypeptides encoded by these genes, useful in the prevention, treatment and diagnosis of cancer, immune disorders, cardiovascular disorders and neurological diseases
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Addison's disease; allergy; autoimmune haemolytic anaemia; autoimmune thyroiditis; diabetes mellitus; Crohn's disease multiple sclerosis; rheumatoid arthritis; ulcerative colit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nootropic; neurpprotective; antiviral; antiallergic; hepatotropic;
antidiabetic; antiinflammatory; antiulcer; vulnerary; anticonvulsant;
antibacterial; antifungal; antiparasitic; cardiant; immune disorder;
               diabetes mellitus, Crohn's disease, multiple sclerosis, rheumatoid arthritis and ulcerative colitis; cardiovascular disorders such as
                                                                                                                                                                                                                                                                                                                                                                   Claim 11;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (HUMA-) HUMAN, GENOME
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Breast and ovarian cancer associated antigen protein sequence SEQ
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5 AAFFVLLPER 134
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CA,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ruben
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neurological
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                                   rheumatoid
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                                                                                                                                                                                          useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukarvotes for the Amazianian
                                                                                                                                   discloses genomic DNA sequences sequences (ABL01840-ABL16175) an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23-MAR-2000;
11-JUL-2000;
    Sequence
                                                                                                                                   insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL16176-ABL30511), expressed DNA sequences (ABL01840-ABL16175) and the encoded proteins
                                                                                                                                                                                                                                               The invention relates to an capable of detecting 1000 or
                                                                                                                                                                                                                                                                                                               Disclosure; SEQ ID NO 18072;
                                                                                                                                                                                                                                                                                                                                                                                  genes
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                                             at ftp.wipo.int/pub/published_pct_sequences.
                                                                    specification,
                                                                                         (ABB57737-ABB72072)
The sequence data f
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       161
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            41 ARLLRAGLSWSAPERASPAPGGRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2001-656860/75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVVSTDPGFRSHWLVATLCSFGRFLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAFFLLLPER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ARQLHISL-----QSEPVVTDAFLAVAGHIFSAGITWGKVVSLYAVAAGLAVDCVRQAQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAFFVLLPER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVVSTDPGLRSHWLVAALCSFGRFLK
                                                                                                                                                                                                                                                                                                                                                                               from Drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98;
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    247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Adams M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      176 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         developmental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                      nucleic
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2000US-0614150
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    AA;
                                                                       but was
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NY.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       170
                                                                    for this patent did not form was obtained in electronic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             epilepsy; and infectious
                                                                                                                                                                                                                                                                                                                                                                             acid
a and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    56.4%;
75.4%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PWD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       biology;
                                                                                                                                                                                                                                                                                                                                                                             detection reagent for for elucidating cell s
                                                                                                                                                                                                                                                                   isolated nucleic acid detection reagent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               247
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                                                                                                                                                                                                                                                                                                          21pp +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 495; DB 21;
Pred. No. 3.4e-49;
5; Mismatches 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Myers
                                                                  electronic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cell signalling; insecticide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQ
                                                                                                                                                                                                                                                                                                             Sequence Listing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ID NO 18072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                diseases
                                                                    n part of
                                                                                                                                                                                                                                                                                                                                                                           r detecting 1000 signalling and c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
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                                                                  of the printed t directly from
                                                                                                                                                                                                                                                                                                        English.
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                                                                                                                                                                                                                                                                                                                                                                               cell-cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
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                                                                    WIPO
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.88;

Score 173.5;

DB

22;

Length

247;

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ABB64401
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                               Query Match
Best Local
                                    Matches
                                                                                                                                              sequences (ABL0184)
(ABB57737-ABB72072)
                                                                                                                                                       insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL16176-ABL30511), expressed DNA sequences (ABL01840-ABL16175) and the encoded proteins
                                                                                                                                                                                           The invention relates to an isolated nucleic acid detection reagent capable of detecting 1000 or more genes from Drosophila. The invention useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryotes for the development of
                                                                                   Sequence
                                                                                                                                                                                                                                                         Disclosure; SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                23-MAR-2000;
11-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 pharmaceutical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Drosophila; developmental biology; cell signalling; insecticide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Drosophila melanogaster polypeptide SEQ ID NO 19995
                                                                                                                     specification, but was obtained in electronic
                                                                                                                                                                                                                                                                                 interactions
                                                                                                                                                                                                                                                                                          New isolated nucleic acid genes from Drosophila and
                                                                                                                                                                                                                                                                                                                                N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                   Venter JC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                     23-MAR-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO200171042-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            26-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ABB64401 standard;
                                                                                                                                                                                                                                                                                                                                                                                          (PEKE ) PE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      207
           26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25
                                               Local Similarity
                                                                                                         ftp.wipo.int/pub/published_pct_sequences
                                                                                                                                sequence data for this patent did not form
ELVAQAKALGREYVHARLLRAG-LSWSAPER---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QDIISQGRCLCGHYIKRRLRRSGLFNKKLGLQRIRSILGSTSMGIVRDVFPAVQVLGDEL
                                                                                                                                                                                                                                                                                                                                2001-656860/75
DB; ABL08504.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SVDCVRQGHPEYLPKLMESVSEVIEDELVPWINENGGW 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ERMHPRIYNGVARQICRNPGGEFHTPDAVSLLLGAVGRELFRVEITWSKVISLFAIAGGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KELVAQAKALGREYVHARLLRAGL....----SWSAP....-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ERASPA-----
                                                                                                                                                                                                                                                                                                                                                                                          CORP NY.
                                                                                   846 AA;
                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                  Adams M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                2000US-191637P.
2000US-0614150.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    2001WO-US09231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                        NO 19995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----PGGR------LAEVCTVLLRLGITWGKVVSLYSVAAGL 91
                                              19.7%;
28.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27.8%;
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                                                                                                                                                                                                                                                                                                                                                                   PWD,
                                                                                                                                                                                                                                                                                         detection reagent for detecting 1000 for elucidating cell signalling and c
                                   17;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           846
                                              Score 173;
Pred. No. 6.
                                                                                                                                                                                                                                                       21pp + Sequence Listing; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No.
                                                                                                                                                                                                                                                                                                                                                                  Myers
                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                   W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.1e-11;
                                              DB 22;
.3e-11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              41;
                                                                                                                   n part of the printed format directly from WIPO
                                                        Length
                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                   52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              53;
                                                                                                                                                                                                                                                                                            cell-cell
                                                                                                                                                                                                                                                                                                      or more
                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
            55
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                146
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δÃ

37 EYVHARLLRAGLSW---

--SAPERASPAPG--

Query Match Best Local Matches 4

Similarity

14.98; 19.48;

Score 131; DB Pred. No. 9e-0 26; Mismatches

; DB 17; 9e-07;

Indels 8

52;

88;

Gaps -- 61

Conservative

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RESULT 10
AAW02383
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ij
                                                                                                                                                                  The present sequence is human BCL2 from which a peptide capable of inhibiting BCL2 gene, or gene product, function in a cell can be derived. The cDNA sequence encoding the peptide is a sense oriented genetic suppressor element (GSE) for reversing.
                                                                      for the treatment of cancer, but more generally to induce virus infected cell death, or to treat apoptosis related diseases of haematopoietic or neurological cells. The GSE peptide product or
                                                                                                                       GSE and its peptide product can be used to sensitise cancer cells to chemotherapeutic agents, and to increase apoptosis, especially
                                                                                                                                                    sense oriented genetic suppressor element (GSE) for reversing BCL2 mediated suppression of apoptosis in a mammalian cell. The
                                                                                                                                                                                                                                                                              Sense oriented genetic suppressor elemediated inhibition of apoptosis, and against chemotherapeutic agents
                                                                                                                                                                                                                                                                                                                                                          WPI; 1996-443179/44.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B cell malignancy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 increase; treatment; induction; virus; infection; disease; haematopoletic; neurological; recombinant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sense oriented; genetic suppressor element; GSE; reverse; BCL2; gene; mediated; suppression; apoptosis; mammalian; cinhibition; sensitisation; cancer; chemotherapeutic agent;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               04-JUN-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAW02383 standard;
Sequence
                                                                                                                                                                                                                                                 Claim 20; Pages 37-38; 66pp; English.
                                                                                                                                                                                                                                                                                                                                            N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                       (UNII ) UNIV ILLINOIS FOUND
                                                                                                                                                                                                                                                                                                                                                                                                                                                      17-MAR-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14-MAR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                26-SEP-1996.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             W09629403-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       decrease; expression; anticancer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human BCL2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAW02383;
                                                          recombinant construct encoding the GSE can be used to decrease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          96
                           gene expression by exerting an anticancer effect, of non-Hodgkin's lymphoma and B cell malignancy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DCVRQGHFDYLQCLIDGLAEIIEDDLVYWLIDNGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MHPRVYTNISRQLSRAPFGELEDSDMAPMLLNLVAKDLFRSSITWGKIISIFAVCGGFAI 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DIINQGKCLCGQYIRARLRRAGVLNRKVTQRLRNILDPGSSHVVYEVFPALNSMGEELER 155
                                                                                                                                                                                                                                                                                                                                            AAT33694.
239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
AA;
                                                                                                                                                                                                                                                                                                                                                                                         Roninson
                                                                                                                                                                                                                                                                                                                                                                                                                                                    95US-0405702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   96WO-US03545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -ASPAPGGRLAE------VCTVLLRLGITWGKVVSLYSVAAGLAV 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Protein;
                                                                                                                                                                                                                                                                                                                                                                                         IB,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            239
                                                                                                                                                                                                                                                                                                                                                                                         Schott B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A
A
                                                                                                                                                                                                                                                                                              element and for
                                                                                                                                                                                                                                                                                                                                                                                         Tarasewicz
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    for reversing
sensitising canc

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                                         effect, e.g.
                                                                                                                                                                                                                                                                                                                                                                                         BG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       construct;
                                                                                                                                                                                                                                                                                              cancer cells
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cell;
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RESULT 11
AAG64036
ID AAG644036
AC AAG64
AC AAAC6
AC AAG64
AC AAG64
AC AAG64
AC AAG64
AC AAG64
AC AAG64
AC AAG6
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Best Local Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                     increased apoptosis inhibitory activity compared with the wild type Bc1-2 protein. The mutated Bc1-2 protein is useful in the treatment of disorders caused by apoptosis. The present sequence is a mutant Bc1-2 protein of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The invention relates to an apoptosis inhibitor comprising the amino acid sequence of Bcl-2 protein in which at least one serine residue is substituted by alanine or aspartic acid. The protein has
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 5; Page 30-31; 43pp; Japanese
                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Shibazaki F,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          09-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              07-DEC-2000; 2000WO-JP08667.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14-JUN-2001
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human Bcl-2 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAG64036;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAG64036 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           New apoptosis inhibitors, useful for treating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (HISM ) HISAMITSU PHARM CO LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human; Bcl-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         197
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                                                                                                                                                           KYIHYKLAQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DVLKCY-VSTDPGFRSHWL-VATLCS
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                                                      APGAAAGPALSPVPPVVHLALRQAGDDFSRRYRGDFAEMSSQLHLTPFTARGRFATVVEE
                                                                                                                                                                                                              EYVHARLLRAGLSW-----SAPERASPAPG---
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  LLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kuma H;
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                                                                                                                                                                                                                                                                                                                                                                       <u>Α</u>,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mutant
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19.4%;
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                                                                                                                                                                                                                                                                                           Score 131; DB 2
Pred. No. 9e-07;
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                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                  Indels
                                                                                                          GRLAEVCTV
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RESULT 12
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The invention relates to an apoptosis inhibitor comprising the amino acid sequence of Bc1-2 protein in which at least one serine residue is substituted by alanine or aspartic acid. The protein has increased apoptosis inhibitory activity compared with the wild type Bc1-2 protein. The mutated Bc1-2 protein is useful in the treatment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New apoptosis inhibitors, disorders
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Synthetic.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Shibazaki F,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           09-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         07-DEC-2000;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAG64038;
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                                                                                                                                                                                               APGAAAGPALSPVPPVVHLALRQAGDDFSRRYRGDFAEMSSQLHLTPFTARGRFATVVEE 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2001-381681/40
  AFVELYGPSMRPLFDFSWLSLKTLLS
                                              DVLKCV-VSTDPGFRSHWL-VATLCS 154
                                                                                                                                                                                                                                                                                               KYTHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DVLKCV-VSTDPGFRSHWL-VATLCS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWD 196
                                                                                               LFRDGVNWGRIVAFFEFGGVMCVEAVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWD 196
                                                                                                                                           LLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7; Page 33-34; 43pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bcl-2 protein
                                                                                                                                                                                                                                                                                                                                                                                               40;
                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            239 AA;
                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2000WO-JP08667
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99JP-0350427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mutant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              entry)
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                                                                                                                                                                                                                                                                                                                                                                                       Pred. No. 9e-(
5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                            Score 131; Db 2.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      treating apoptosis
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                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mutant.
                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
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Protein;

239

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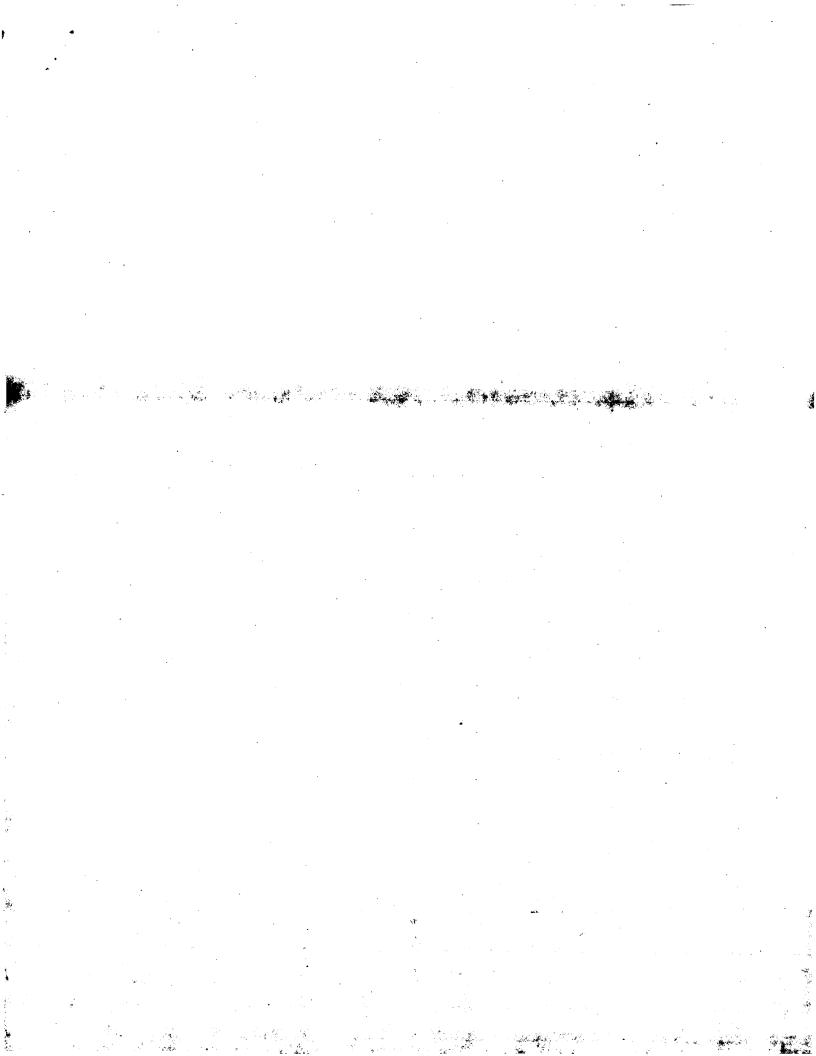
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RESULT 14
AAR42312
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AAP80987
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                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                    A human bcl-2 gene substantially free of introns is claimed. Also claimed is a substantially pure preparation of a protein having an N-terminal end encoded by the first exon of the human bcl-2 gene wherein said protein is bcl-2-alpha having about 239 (AAP80987) or 205 (AAP80988 AA residues. B-cell neoplasms which are associated with t(14;18)
                                                                                                                                                                                                                                                           used
                                                                                                                                                                                                                                                                  chromosome translocations cause an increase in expression of both the mRNA and the protein prods. of the bcl-2 gene. This is used to detect B-cell neoplasms including follicular lymphomas as well as other lymphomas. Bacterial isolates available as ATCC 67147 and 67148 can be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence of bcl-2-alpha the 5.5 kb transcript.
                                                                                                                                                                                                                                                                                                                                                            Claim 12; Fig 2A-2D;
                                                                                                                                                                                                                                                                                                                                                                              Detection of B-cell neoplasms -
by extn. of proteins or RNA from B-cells and quantitation using
specific antibody or DNA probe
                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 1988-008633/02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EP252685-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B-cell neoplasm; diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAP80987;
                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                    N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                               Tsujimoto Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     09-JUL-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        02-JUL-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13-JAN-1988.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAP80987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (WIST-) WISTAR CORP
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                                                                                                                                                                                                  Local Similarity
                                                                         LFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWD 196
                                                                                     LLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWT 130
                                                                                                                                                    KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA
                                      AFVELYGPSMRPLFDFSWLSLKTLLS
                                                        DVLKCV-VSTDPGFRSHWL-VATLCS 154
                                                                                                                                                                        EYVHARLLRAGLSW-----SAPERASPAPG-----
                                                                                                                                                                                                                                                         to express bcl-2 gene products alpha (AAN81292) and beta (AAN91293)
                                                                                                              {\tt APGAAAGPALSPVPPVVHLALRQAGDDFSRRYRGDFAEMSSQLHLTPFTARGRFATVVEE}
                                                                                                                                                                                           40;
                                                                                                                                                                                                                                                                                                                                                                                                                    AAN81292.
                                                                                                                                                                                                                                                 bacteria.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  standard;
                                                                                                                                                                                                                              239 AA;
                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                               Croce CM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     86US-0883687.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        87EP-0305863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein;
                                                                                                                                                                                                  14.8%;
19.4%;
                                                                                                                                                                                                                                                                                                                                                            23pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          encoded
                                                                                                                                                                                          25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 follicular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   239
                                                                                                                                                                                        Score 130; DB 9;
Pred. No. 1.2e-06;
5; Mismatches 53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          by sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                lymphomas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          of bcl-2 cDNA corresp.
                                                                                                                                                                                                        Length 239;
                                                                                                                                                                                          Indels
                                                                                                                                 -GRLAEVCTV 70
                                                                                                                                                                                         ; 88
                                                                                                                                                                                                                                                                                                                (AAP80988)
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AAR70331
                                                                                                    RESULT 15
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Best Local S
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of elements allowing its expression is claimed. Myc-induced cell death can be inhibited in cultured cells by expressing bcl-2. Myc-induced cell death can be de-inhibited in tumour cells by admin of bcl-2 antisense oligonucleotides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Disclosure; Page 76-77; 109pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Treating tumour cells by de-inhibiting Myc-induced apoptosis esp. by inhibiting expression of the BCL-2 oncogene e.g. with antisense oligo:nucleotide(s), also increasing survival of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 1993-336908/42.
N-PSDB; AAQ49815.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cell death;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bcl-2 oncogene
27-SEP-1995
                                  AAR70331;
                                                                  AAR70331 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cultured cells by expressing BCL-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Evan GI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (IMCR ) IMPERIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        02-APR-1992;
02-APR-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          02-APR-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO9320200-A.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                expression;
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                                                                                                                                                                                                                                                                                                                                                                                                 37 EYVHARLLRAGLSW-----SAPERASPAPG-----
                                                                                                                                                                                                                                                                                              APGAAAGPALSPVPPVVHLALRQAGDDFSRRYRGDFAEMSSQLHLTPFTARGRFATVVEE 136
                                                                                                                                                                                                                                                                                                                                                                 KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA
                                                                                                                                                         AFVELYGPSMRPLFDFSWLSLKTLLS
                                                                                                                                                                                       DVLKCV-VSTDPGFRSHWL-VATLCS 154
                                                                                                                                                                                                                           LFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWD
                                                                                                                                                                                                                                                            LLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWT 130
                                                                                                                                                                                                                                                                                                                                                                                                                                       1 Similarity
40; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          239 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                apoptosis;
myc.
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(first entry)
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92GB-0007276
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                                                                    Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      14.8%;
19.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   entry)
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                                                                    239
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 130;
Pred. No. 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
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les 53;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 239;
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                                                                                                                                                                                                                                                                                                                                  GRLAEVCTV 70
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Human bcl-2 protein.

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Best Local Similarity
Matches 40; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The human bcl-2 gene encodes a 25 kDa protein (AAR70331). Antisense oligonucleotides have been designed to bind sites in mRNA transcribed from the bcl-2 gene, thereby reducing expression of the bcl-2 protein and inducing cell death in certain cancer cells.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Anti-code oligomers which bind to bcl-2 mRNA - for the treatment of human solid tumours, esp. breast cancer {\sf var}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20-SEP-1994;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Disclosure; Page 71-72; 108pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 1995-139394/18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Reed JC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (REED/) REED J C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20-SEP-1993;
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197 AFVELYGPSMRPLFDFSWLSLKTLLS 222
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19.4%; Pred. No. 1.2e-06;
tive 25; Mismatches 53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 239;
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Result
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Perfect score:
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Q9V9C8
Q8V9C8
Q8T8Y5
Q9NGX3
Q9NGX3
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L 035425
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Q923R6
Q923R6
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Q9ul32 homo sapien
035425 rattus norv
Q9umx3 homo sapien
09i8i2 gallus gall
09dgj5 gallus gall
080857 rattus norv
Q9v9c8 drosophila
Q8t8y5 drosophila
Q9ngx3 drosophila
Q9ngx3 drosophila
Q9v612 drosophila
Q9v612 drosophila
Q9v618 drosophila
Q9v618 drosophila
Q9v618 mus musculu
035844 mus musculu
035844 mus musculu
Q8wx2 mus musculu
Q8wx2 felis silve
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145.5 145.5 147.5 131.5 137.5 137.5 137.5 137.5 137.5 138.5	147.5 147.5 146.5 146.5
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1172 192 238 233 217 100 1163 1163 1178 1178 1178 1178 1178 1179 1173 1173 1172 1172 1172 1172	233 233 188 219
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Q9NEG/ Q919N4 Q90Z98 Q9NYW4 Q9N35 Q9NZ49 Q8WZ49 Q9BDD5 Q9WZS6 Q9BU13 Q9BU3 Q9BU3 Q9BU3 Q9BU3 Q9CYW5	Q9MZS7 Q9N1A2 Q9H1R6 Q99N36
O91914 brachydanio O90298 brachydanio O90212 xenopus lae O80296 bos taurus O90297 bos taurus O90297 bos taurus O90297 bus musculu O90297 ovis aries O80296 rattus norv O9213 rattus norv O9213 rattus norv O9213 rattus norv O9261 gallus gall O9unjl homo sapien O9176 homo sapien O9177 mus musculu O55179 mus musculu O80491 gallus gall	Q9mzs7 ovis aries Q9nla2 sus scrofa Q9hlr6 homo sapien Q9bn36 mus musculu Q9nvg7 homo sanien

ALIGNMENTS

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Qy	Db	Qy	DЪ	Qy	Ма	Q.	SQ	DR DR	DR	DR	DR	DR	R.	R X	RP	RN	οx	88	S &	GN	DE	DŢ.] [AC	ij	RESULT
121 WGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEEVRKTLATWLRRRGGWTDVLKCVV 180	61 GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT 120	61 GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT 120	1 MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP 60	1 MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP 60	Matches 213; Conservative 0; Mismatches 0; Indels 0; Gaps 0;	100.0%;	SEQUENCE 213 AA; 23540 MW; 59509F8C7330517F CRC64;	SMART; SM0037; BCL; 1. PROSITE; PS50062; BCL2_FAMILY; 1.	Pfam; PF00452; Bc1-2; 1.	InterPro; IPR002475; BCL2_family.	InterPro; IPR000712; Bc12_BH.		Submitted (SEP-1998) to the EMBL/GenBank/DDBJ databases.	"CDNA Cloning of the human Rok gene ".	SEQUENCE FROM N.A.	[1]		Primates; Catarrhini	Homo Sapiens (Human). Firkaryota: Metazoa: Chordata: Craniata: Vertebrata: Firteleoctom:		Bcl-2 related ovarian killer.	(TrEMBLiel.	י ב		Q9UL32 PRELIMINARY; PRT; 213 AA.	LT 1

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Best Loc
Matches
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Submitted (DEC-197) to the EMBL/Ge
EMBL; AF027954; AAB87418.1; -
EMBL; AF027707; AAC53582.1; -
MGD; MGI:1858494; Bok.
InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; BCL2_family.
Pfam; PF00452; Bc1-2; 1.
SMART. SMO0337. BCF:-1;
SMART. SMO0337. BCF:-1
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SMART; SM00337; BCL; 1.
SMART; SM00337; BCL2_FAMILY;
PROSITE; PS50062; BCL2_FAMILY;
PROSITE; PS50062; BCL2_FAMILY;
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proc. Natl. Acad. ~-'
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01-JAN-1998 (TrEMBLrel. 05, I
01-JUN-2002 (TrEMBLrel. 21, I
BCL-2-related ovarian killer
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035425;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
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Submitted (NOV-2001) to the EMBL/G
EMBL; AF174487; AAD51719.1; -.
EMBL; BC006203; AAH66203.1; -.
EMBL; BC017214; AAH17214.1; -.
InterPro; IPR000712; BC12_BH.
InterPro; IPR002475; BC12_family.
Pfam; PF00452; BC1-2; 1.
SMART; SM00337; BCL; 1.
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Q91812;
Q1-OCT-2000
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Q9UMX3;
Q1-MAY-2000
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SEQUENCE
                                                              01-OCT-2000 (TrEMBLrel. 15, 1
01-OCT-2000 (TrEMBLrel. 15, 1
01-JUN-2002 (TrEMBLrel. 21, 1
Bcl-2-related ovarian killer
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01-MAY-2000 (TrEMBLrel. 21, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
BCL-2-related ovarian killer protein (Similar to BCL-2-related ovarian killer protein-like-PENDING) (BCL-2-related ovarian killer protein-like-PENDING) (BCL-2-related ovarian killer
                                             Gallus gallus (Chicken).
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Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
                     Eukaryota;
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TISSUE=MUSCLE;
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                   Metazoa;
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                                                                                                                                                                     PRELIMINARY;
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; 23280 MW;
Neognathae;
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                       Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          92.5%;
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                                                                                   Last sequence up
                                                                                                                            Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 1017.5; DB 4;
Pred. No. 1.2e-81;
3; Mismatches 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL/GenBank/DDBJ
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                                                                protein.
  Craniata; Ver
; Galliformes;
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  Vertebrata; Eute
nes; Phasianidae;
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                     Euteleostomi;
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Best Local :
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Best Local Similarity
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01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Bcl-2-related ovarian killer protein.
Gallus gallus (Chicken).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROSITE;
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                                                                                                                                                                                                                                                    PROSITE; PS50062; SEQUENCE 213 AA
                                                                                                                                                                                                                                                                                              Pfam; PF00452; Bcl-2; SMART; SM00337; BCL;
                                                                                                                                                                                                                                                                                                                                                                                  Submitted (JUL-2000) to the EMBL/GenBank/DDBJ databases EMBL; AF290888; AAG01182.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mills E.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Archosauria; Aves; Neognathae; Galliformes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q9DGJ/5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SMART;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Evolutionarily conserved Bok proteins FEBS Lett. 480:311-313(2000). EMBL, AF275944; AAF81882.1; -.
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MEDLINE=20487164; PubMed=11034351;
                                                                                                                                                                                                                                                                                                                                        InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; BCL2_family.
                                                                                                                                                                                                                                                                                                                                                                                                                                   "Characterization and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=9031;
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SMART; SM00337; BCL; 1.
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NCBI_TaxID=9031;
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                                                                   STDPSLRSHWLVAAVCSFGHFLKAIFFVLLPER
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                                                                                                                                                                                Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                            Johnson A.L., Bridgham J.T.; ration and Expression of Bok in the Hen
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                                                                                                                                                                                                                                               BCL2_FAMILY;
; 23658 MW;
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77.0%;
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76.1%;
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Pred. No. 4.9e-69;
2; Mismatches 27;
                                                                                                                                                         Score 868; DB 13;
Pred. No. 1.7e-68;
3; Mismatches 28;
                                                                                                                                                                                                                                 1.
07CC06BEBD7311EC CRC64;
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B3AF7049F25442E3 CRC64;
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088857;
01-NOV-1998 (TI
01-NOV-1998 (TI
01-JUN-2002 (TI
BCI-2-related of
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InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; BCL2_family
Pfam; PF00452; Bc1-2; 1
SMART; SM00337; BCL; 1
PROSITE; PS50062; BCL2_FAMILY; 1
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Hsu S.Y., Kaipia A., McGee E., Lomeli M., Hsueh A.J.W.;
"Bok is a pro-apoptotic bcl-2 protein with restricted ex
reproductive tissues and heterodimerizes with selective
bcl-2 family members.";
Proc. Natl. Acad. Sci. U.S.A. 94:12401-12406(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hsu S.Y., Hsueh A.J.W.;
Hsu S.Y., Hsueh A.J.W.;
"A splicing variant of the Bcl-2 member Bok with a truncated BH3
"Armain induces apoptosis without dimerization with anti-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (FEB-1998) to the EMBL/GenBank/DDBJ databases
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    138
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GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT
                                                                                                                                                                    GGRLAEVCTVLLRL - -
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(TremBLrel. 08, Last sequence update)
(TremBLrel. 21, Last annotation update)
ed ovarian killer protein.
                                                                                                                                                                                                                                                                                                                                   Conservative
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; 18729 MW;
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Rodentia;
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78.4%;
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                                                                                                                                                                                                                                                                                                                                                                       Score 828.5;
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Sciurognathi; Muridae;
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15E54361F448CF16 CRC64;
                                                                                                                                                                                                                                                                                                                                 Mismatches
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; Murinae; Rat
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RESULT 7 Q9V9C8 ID Q9V9

Q9V9C8

PRELIMINARY;

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RA Adams M.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
RA Adams M.D., Celniker S.E., Li P.W., Hoskins R.A., Galle R.F.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Brandon R.C., Baxen A., Anh.-J., Andrews-Pfannkoch C., Baldwin D.,
RA Brandon R.C., Baxen A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Bolther P.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Durbin K.J., Evangelista C.C., Ferraz C., Ferriera S., Fleischmann W.,
RA Fosler C., Gabrielian A.E., Garg N.S., Gelbart W.M., Glasser K.,
RA Harris N.L., Harvey D., Helman T.J., Hernandez J.R., Houck J.,
RA Harris N.L., Harvey D., Helman T.J., Hernandez J.R., Houck J.,
RA Harris N.L., Harvey D., Helman T.J., Wei M.-H., Ibegwam C.,
RA Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
RA Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
RA Lasko P., Lei Y., Levitsky A.A., Li J., Wei M.-H., Noshrefi A.,
RA Mount S.M., Moy M., Murphy B., Murphy L., Muzny D.M., Nelson D.L.,
RA Palazzolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,
RA Shue B.C., Siden-Kiamos I., Simpson M., Skupski M.P., Smith T.
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01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-OCT-2000 (TrEMBLrel. 21, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Death EXECUTIONER BCL-2 homolog protein (PROAPOPTOTIC BCL-2 homolog
DEBCL) (BCL-2 family member protein) (BCL-2 ORTHOLOG DBORG-1),
DEBCL) (BCL-2 family member protein) (BCL-2 ORTHOLOG DBORG-1),
DEBCL OR DBORG1 OR BOK OR BCL2 OR BG1 OR ROB-1 OR CG12397,
DEBCL OR DBORG1 OR BOK OR BC12 OR BG1 OR ROB-1 OR CG12397,
DESCRIPTION BOK OR BC12 OR BG1 OR ROB-1 OR CG12397,
Drosophila melanogaster (Fruit fly)
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Peterygota; Metazoa; Endopterygota; Diptera; Brachycera; Muscomorphi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REVISIONS
Igaki T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Drosophila pro-apoptotic Bc1-2/Bax homolog conservation of cell death mechanisms.";
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MEDLINE-20105529; PubMed-2015529;
Igaki T., Kanuka H., Inohara N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=20196006; PubMed=10731132;
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01-MAY-2000
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-20153510;
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Huang Q.,
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Kanuka H., Inc
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nn L.M., Huang D.
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EMBL/GenBank/DDBJ
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machinery.";
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Q8T8Y5;
01-JUN-2002
01-JUN-2002
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CONFLICT
SEQUENCE
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InterPro; IPR000712; Bcl2_BH.
InterPro; IPR0002475; BCL2_family.
InterPro; IPR000822; Znf_C2H2.
Pfam; PF00452; Bcl-2; 1.
SMART; SM00337; BCL; 1.
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CONFLICT 1 86
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Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "dBorg-1, a Drosophila Bcl-2 family member that apoptotic response to UV-irradiation."; Submitted (MAR-2000) to the EMBL/GenBank/nnnr and EMBL; ARN 27/200.
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Zhou L., Steller H.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
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                                                                                                                                                                                                                                                                                                                                                                                                                        26
                                                                                                                                                                                                                                                                                       {\tt MHPRVYTNISRQLSRAPFGELEDSDMAPMLLNLVAKDLFRSSITWGKIISIFAVCGGFAI}
                                                                                                                                                                                                                                                                                                                  IRPSYYRNVARQL-HIP---LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAV 136
                                                                                                                                                                                                                                                                                                                                                                               DIINQGKCLCGQYIRARLRRAGVLNRKVTQRLRNILDPGSSHVVYEVFPALNSMGEELER
                                                                                                                                                                                                                                                                                                                                                                                                        ELVAQAKALGREYVHARLLRAG-LSWSAPER----ASPAPGGRLAEVCTVLLRLGDELEQ
                                                                                                                                                                                                     DCVRQGHFDYLQCLIDGLAEIIEDDLVYWLIDNGGW
                                                                                                                                                                                                                                              DCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Lted (MAR-2000) to the EMBL/GenBank/DDBJ databases.
AB032430; BAA89603.2; -.
AB032430; BAA89603.2; -.
AF149798; AAF26841.1; ALT_INIT.
AF178430; AAF26289.1; -.
AF228044; AAF89165.1; -.
AF228044; AAF89165.1; -.
AF216752; AAF257365.1; ALT_TERM.
AF216752; AAF25755.1; ALT_TERM.
AF222004; AAF44324.1; -.
AF222004; AAF44714.1; -.
AF244352; AAF44714.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PS50062; BCL2_FAMILY; 1.
PS50157; ZINC_FINGER_C2H2_2;
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217
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      (TrEMBLrel.
(TrEMBLrel.
(TrEMBLrel.
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                                                                                             PRELIMINARY;
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Created)
Last sequence update)
Last annotation updat
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I -> V (
C -> R (
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred. No. 3.1
7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 240.5;
Pred. No. 3.1
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                                                                                             PRT;
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-> R (IN REF. 4)
FF29E0ADCF3D0942
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hat functions
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Smith H.O.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9;
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Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Stapleton M., Brokstein P., Hong L., Agbayani A., Carlson J., Champe M., Chavez C., Dorsett V., Dresnek D., Farfan D., Frise E., George R., Gonzalez M., Guarin H., Kronmiller B., Li P., Liao G., Miranda A., Mungall C.J., Nunco J., Pacleb J., Paragas V., Park S., Patel S., Phouanenavong S., Wan K., Yu C., Lewis S.E., Rubin G.M., Celniker S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Musc.
Ephydroidea; Drosophilidae; Drosophila.
NCBI_TaxID=7227;
                                      FlyBase; FBgn0040491; Buffy.
InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; BCL2_family.
Pfam; PF00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                                                                                            01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL;
                                                                                                                             "Debcl, a proapoptotic bc1-2 homologue, is a Drosophila melanogaster cell death machinery. J. Cell Biol. 148:703-714(2000).
                                                                                                                                                                                                                                                                                                    Bcl-2-like protein BUFFY OR CG8238.
                                                                                                                                                                                                                                                                                                                                                                    Q9NGX3;
                                                                                                                                                                                                                                                                                                                                                                                Q9NGX3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted (JAN-2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                       HSSP;
                                                                                                                                                                                  Colussi P.A., Quinn L.M., Huang D.C.,
                                                                                                                                                                                              MEDLINE=20153510; PubMed=10684252;
                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                  Pterygota; N
Ephydroidea;
                                                                                                                                                                                                                                                                           Eukaryota;
                                                                                                                                                                                                                                                                                        Drosophila melanogaster
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                           PROSITE;
                                                                                                                                                                     Richardson H., Kumar S.;
                                                                                                                                                                                                                                   NCBI_TaxID=7227;
                                                                                                                                                                                                                                                                                                                                                                                                                                                261
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW----TDVLKCVVSTKPGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QDIISQGRCLCGHYIKRRLRRSGLFNKKLGLQRIRSILGSTSMGIVRDVFPAVQVLGDEL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EQIRPSVYRNVARQL------HIPLQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSA
                                                                                                     AF237864; AAF44120.1; Q07817; 1MAZ.
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NCE 299 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         66;
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                         PS50062; BCL2_FAMILY;
                                                                                                                                                                                                                                               melanogaster (Fruit fly).
Metazoa; Arthropoda; Tracheata;
Neoptera; Endoptera; Diptera
a; Drosophilidae; Drosophila.
  313
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                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
 Α,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAL68086.1;
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 34909 MW;
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31.1%;
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                                                                                                                                                                                                                                                                                                                (Fragment).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 238.5;
Pred. No. 4.
                                                                                                                                                                                                                                                                                                                                                                                PRT;
 775A41FDDD5B678E CRC64;
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                                                                                                                                                                                                                                                            Brachycera;
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                                                                                                                                                                                   Read
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                                                                                                                                                                                                                                                              Muscomorpha;
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    RA Ballew R. M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
RA Beeson K.Y., Benos P.V., Berman B.P., Brokstein P., Brottier P.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
RA Burlis K.C., Busam D.A., Butler H., Cadieu E., Center A., Chandra I.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA de Pablos B., Delcher A., Deng Z., Mays A.D., Dev I., Dietz S.M.,
RA de Pablos B., Delcher A., Deng Z., Mays A.D., Dev II., Dietz S.M.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA de Pablos B., Delcher A., Deng Z., Mays A.D., Dev II., Dietz S.M.,
RA Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Dodson K., Davies M., Deng Z., Mays A.D., Dev II., Dietz S.M.,
RA Fosler C., Gabrielian A.E., Garg N.S., Gelbart W.M., Glasser K.,
RA Glodek A., Gong F., Gorrell J.H., Gu Z., Gunn P., Harris M.,
RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,
RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,
RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,
RA Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,
RA Mentulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,
RA Mentulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,
RA Palazzolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,
RA Reinert K., Remington K., Saunders R., D.C., Scheeler F., Shen H.,
RA Spier E., Spradling A.C., Stapleton M., Strong R., Sun E.,
Syirskas R., Tector C., Turner R., Venter E., Mang A.H., Wang X.,
RA Wang Z.-Y., Wassarman D.A., Weinstock G.M., Weissenbach J.,
RA Weilson Ch., Sauder T., Jan D.A., Weinstock G.M., Weissenbach J.,
RA Weilson Ch., Sauder T., Jan D.A., Rah M., Zhang G., Zhao Q.A.,
RA Ye J., Yeh R.-F., Zaveri J.S., Zhan M., Zhang G., Zhao Q., Zheng L.,
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Q9V612;
01-MAY-2000
01-MAY-2000
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN-BERKELEY;

MEDLIND-20196006; PubMed=10731132;

Adams M.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,

Adams M.D., Celniker S.E., Li P.W., Hoskins R.A., Galle R.F.,

Amanatides P.G., Scherer S.E., Li P.W., Hoskins R.A., Galle R.F.,

George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,

Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,

Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,

Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeliffer B.D.,

Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeliffer B.D.,

Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,

Man K.H., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,

Abril J.F., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,

Paradeley E.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pterygota; Neoptera;
Ephydroidea; Drosophi
NCBI_TaxID=7227;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
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Pfam; PF00452; Bcl-2; 1.
SMART; SM00337; BCL; 1.
PROSITE; PS50062; BCL2_FAMILY; 1.
SEQUENCE 247 AA; 27466 MW; A2
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InterPro; IPR000712; Bc12_BH.
Pfam; PF00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
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Eukaryota; Metazoa; Arthropoda; Trachec
Pterygota; Neoptera; Endopterygota; Dig
Ephydroidea; Drosophilidae; Drosophila
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DEBCL OR CG12397.
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MHPRVYTNISRQLSRAPFGELEDSDMAPMLLNLVAKDLFRSSITWGKIISIFAVCGGFAI
                                     IRPSVYRNVARQL-HIP---LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAV 136
                                                                            DIINQGKCLCGQYIRARLRRAGVLNRKVTQRLRNILDPGSSHVVYEVFPALNSMGEELER
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1 (TrEMBLrel.
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NO. 2e-12;
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, Venter J.C.;
melanogaster.";
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BCL2. . Cricetulus longicaudatus (Long-tailed hamster) (Chinese hamster). Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalla; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
 Eukaryota;
Mammalia; |
                                          Bcl-x-gamma.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted (JUL-2001) to the EMBL; AF404339; AAK92201.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                     Mus musculus (Mouse).
                                  BCL2L
                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pfam; PF00452; Bcl-2; 1.
Pfam; PF02180; BH4; 1.
TIGREAMS; TIGR00865; bcl-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR000712; Bc12_BH.
InterPro; IPR002093; Bc12_BH4.
InterPro; IPR002475; BC12_Family.
InterPro; IPR004725; Bc12_reg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=10030;
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                                                                                                                                                                                                                                                                                        YLNRHLHTWIQDNGGWDAFVELYGPSVRPLFDFSWL
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                                                                                                                                                                                                                                             VHRDMAARTSPLRPIVATTGPTLSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                                                                                                                                                                          FVRKTLATWLRRRGGWTDVLKCV-VSTKPGFRSHWL
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47; Conserv
                                                                                                                                                                                                                                                                                                                                                                                    FS50062; BCL2_FAMILY; 1.
PS01080; BH1; UNKNOWN 1.
PS01258; BH2; UNKNOWN 1.
PS01259; BH3; UNKNOWN 1.
PS01260; BH4_1; UNKNOWN 1.
PS01260; BH4_1; UNKNOWN 1.
PS01260; BH4_2; 1.
 ; Metazoa;
Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Chen W.,
                                                                                                                                                                                                                                                                 -GRLAEVCTVLLRLGDELEQIRPSVYRNVAR----
                                                    (TrEMBLrel.) (TrEMBLrel.)
                                                                                                                                                                                                                                                                                                                                                                            236
                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                  Conservative
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BH4_2; 1.
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 Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                            26500 MW;
                                                                                                                                                                                                                                                                                                                                           14.4%; Score 158; 21.8%; Pred. No.
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Craniata; Vertebrata;
Sciurognathi; Muridae;
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            Euteleostomi;
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Best Local
                     STRAIN=B6/CBA; TISSUE-THYMUS; MEDLINE-98051053; PubMed-9390687; Yang X.-F., Weber G.F., Cantor H.; "A novel Bcl-x isoform connected to apoptosis in T cells."; Immunity 7:629-639(1997).
EMBL; U51278; AAC53459.1; --
HSSP; P53563; 1AF3.
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01-JAN-1998;
01-JAN-1998;
01-JUN-2002;
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InterPro;
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Immunity 7:629-639(1997).
EMBL; U51277; AAC53458.1; -.
HRSP; P53563; 1AF3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      BCL2L.
                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           035844
                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                             Mus musculus
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=98051053; PubMed=9390687;
                                                                                                                                                                                                                                                                                                                            NCBI_TaxID-10090;
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; TIGR00865; bcl-2; 1.
PS50062; BCL2_FAMILY; 1.
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IPR002475;
IPR004725;
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Metazoa; Chordata; C
-~+heria; Rodentia; ∫
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3 (TrEMBLrel.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
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BCL2_family.
BC12_reg.
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1; Mismatches
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Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
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7.3e-06;
hes 79;
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                                                                                                                                                                                                                                                                                                                                                                                             Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                              Murinae;
                                                                                                                                                regulates
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Qy
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Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q9QWX2
Q9QWX2;
Q1-MAY-2000
01-MAY-2000
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIGRFAMS;
PROSITE; P
PROSITE; P
PROSITE; P
PROSITE; F
PROSITE; F
PROSITE; F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam;
                                                                                     SMART;
SMART;
                                                                                                                                              Pfam;
                                                                                                                                                                                                                                                                           "Bc1-x and Bax regulate mouse primordial apoptosis during embryogenesis."; mol. Endocrinol. 14:1038-1052(2000). EMBL; AF088904; AAC72232.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BCL2L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SMART; SM00337; BCL; SMART; SM00265; BH4;
                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A. MEDLINE=20350651; PubMed=10894153;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
PROSITE; PS50062; BCL2_FAMILY; PROSITE; PS01080; BH1; 1. PROSITE; PS01259; BH3; 1. PROSITE; PS01260; BH4_1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bcl-x (Fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro;
                                                                                                                               Pfam;
                                                                                                                                                                                                                                   HSSP; P53563; 1AF3.
MGD; MGI:88139; Bcl21.
                                                                                                                                                                                                                                                                                                                                                                Rucker E.B. III, Dierisseau P., Wagner K.U.,
Wynshaw-Boris A., Flaws J.A., Hennighausen L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro;
                                                                                                                                                                        InterPro;
                                                                                                                                                                                          InterPro; IPR000712; InterPro; IPR003093;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             115
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LNDHLEPWIQENGGWDTFVDLYGNNAAAESRKGKEGF-NRWFLTGMTVAGVVLLGSLF 230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VRKTLATWLRRRGGWTDVLKCVVST-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----SPAPGGR-----
                                                                                                                          Pro; IPR002475; 1
PF00452; Bc1-2;
PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATY
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                                                                                     SM00337; BCL;
SM00265; BH4;
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S; PS01080; BCL2=FAMILY; 1

S; PS01258; BH2; 1.

S; PS01259; BH3; 1.

S; PS01259; BH4; 1.

S; PS01259; BH4; 1.

S; PS01250; BH4-2; 1.
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IPR002475;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IPR000712;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bcl-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BC12_BH4.
BCL2_family.
BC12_reg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14.0%;
                                                                                                                                                                                          Bcl2_BH.
Bcl2_BH4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  26033 MW;
                                                                                                                                                                      BCL2_family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bcl2_BH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 35;
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Last sequence up
Last annotation
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 154;
Pred. No. |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
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8.9e-06;
89;
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on update)
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Search completed: April 29, 2003, 11:25:40 Job time : 27.2507 secs
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                                                                                                                                                                                                                                                                                                          Query Match 13.7%; Score 150.5; DB 11; Length 188; Best Local Similarity 22.1%; Pred. No. 1.4e-05; Matches 43; Conservative 29; Mismatches 68; Indels 55; Gaps
                                                                                                                                                                                                                                                                                                                                                                    PROSITE; PS50063; BH4_2; 1.
NON_TER 188 188
NON_TER 188 AA; 21126 MW; 4E62F8356D248E52 CRC64;
                                                           174 LNDHLEPWIQENGGW 188
                                                                                                                   158 VRKTLATWLRRRGGW 172
                                                                                                                                                                                                                                                                    57 WHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI-- 114
                                                                                                                                                                                                    4 SNRELVV------DFLSYKLSOKGYSWSOFSDVEENRTEAPEETEAERETPSAINGNPS 56
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Minimum DB :
Maximum DB :
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No.
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Maximum Match 100%
Listing first 45 summaries
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Searched:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Run on:
      Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
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122.5
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Match
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Gapop 10.0 , Gapext 0.5
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1100
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BCLK_HUMAN
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BAK_MOUSE
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ascaris suu	alcaligenes	phycomyces	salmonella	pseudomonas	homo sapien	synechococc	synechocyst	homo sapien	coturnix co	rhodothermu	rattus norv			

ALIGNMENTS

CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	R R R R R R R R O O C O S	RESULT BCL2_R ID B AC P DT 0 DT 1 DE A GN B
STRAIN=Sprague Dawley; TISSUE=Ovary; STRAIN=Sprague Dawley; TISSUE=Ovary; MEDLINE=95129487; pubMed=7828536; Tilly J.L., Tilly K.I., Kenton M.L., Johnson A.L.; "Expression of members of the bcl-2 gene family in the immature rat ovary: equine chorionic gonadotropin-mediated inhibition of granulosa cell apoptosis is associated with decreased bax and constitutive bcl-2 and bcl-xlong messenger ribonucleic acid levels."; Endocrinology 136:232-241(1995). [3] SEQUENCE OF 19-172 FROM N.A. MEDLINE=95059917; pubMed=7969891; Castren E., Ohga Y., Berzaghi M.P., Tzimagiorgis G., Thoenen H., Lindholm D.; "bcl-2 messenger RNA is localized in neurons of the developing and adult rat brain."; "bcl-2 messenger RNA is localized in neurons of the developing and adult rat brain."; Neuroscience 61:165-177(1994)!- FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding to the apoptosis-activating factor (APAP-1)!- SUBUNIT: Forms homodimers, and heterodimers with BAX. BAD, BAK and Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptocic activity (By similarity)!- SUBCELULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum!- TISSUE SPECIFICITY: Expressed in a variety of tissues, with highest levels in reproductive tissues. In the adult brain, expression is localized in mitral cells of the olfactory bulb, granule and pyramidal neurons of hippocampus, pontine noclei, cerebellar granule neurons, and in ependymal cells. In prenatal	ryota alia; alia; TaxI _TaxI _TaxI _TixI _INE=9 T., T., 140:	LT 1 BCL2_RAT BCL2_RAT STANDARD; PRT; 236 AA. P49950; Q62837; Q64032; 01-CCT-1996 (Rel. 34, Created) 01-NOV-1997 (Rel. 35, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation update) Apoptosis regulator Bcl-2. BCL2 OR BCL-2.

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                                                                                                                                                                                                                                                                       SEQUENCE
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PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            European Bioinformatics Institute. The by non-profit institutions as long
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle. In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               brain, expression is higher and in the cortical plate.
DOMAIN: The BH4 domain is r for interaction with RAF-1
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VHRDTAARTSPLRPLVANAGPALSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120
                                                                                  MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDTGDEDSAPLRAAPTPGIFSFQPESNRTPA
                                                                                                                                 VAQAKALG-----
                                       ----GRLAEVCTVLLRLGDELEQIRPSVYRNVAR---
                                                                                                                                                                                                     Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PS50063;
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PS50062; BCL2_FAMILY; 1.
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IPR004725; Bcl2_reg
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          email to license@isb-sib.ch).
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A -> R (IN REF. 2).
E -> G (IN REF. 1).
S -> Y (IN REF. 2).
L -> Q (IN REF. 2).
E7688CB9071A872A CRC64;
                                                                                                                                                                         Score 167.5; DB 1;
Pred. No. 5.9e-08;
5; Mismatches 78;
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BH2.
POTENTIAL.
CLEAVAGE (BY CASPASES)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                    between
the Euro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota;
Mammalia; E
                                                                                                                                             1 1 1 1 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (MAR-1997) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       with suppression of of Bcl-2.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BCL2_BO
002718;
                                                                                                                                                                                                                                                                                             -
                                                                                                                                                                                                                                                                                                                                                                                                                                             <del>-</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN=Holstein; TISSUE=Thymus;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bos taurus (Bovine)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BOVIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Reyes R.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=9913;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Apoptosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16-OCT-2001 (Rel. 40,
15-JUN-2002 (Rel. 41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Bovine leukemia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97
                                                                                                                                        cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytos promoting further caspase activity (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH4) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
                                                                    veen the Swiss Institute of Bioinf
European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                            occurs during the G2/M phase of the cell cycle (By similarity). The absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases. Dephosphorylated by protein phosphatase 2A (PP2A) (By
                                                                                                                                                                                                                                                                                                                                                                                                similarity).

DOMAIN: The BH4 domain is required for anti-apoptotic activity and for interaction with RAF-1 (By similarity).

PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1 (By similarity). SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum (By
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      the apoptosis-activating factor (APAF-1) (By similarity). SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding to
                                                                                                                                                                                                                                                                                           PTM: Proteolytically
                                                                                                                                                                                                                                                                                                              similarity)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoietic and neural cell Regulates cell death by controlling the mitochondrial membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FUNCTION:
                                                                                   SWISS-PROT entry is copyright. It is produced through sen the Swiss Institute of Bioinformatics and the EN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BOVIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        YLNRHLHTWIQDNGGWDAFVELYGPSMRPLFDFSWLSLKTLLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FVRKTLATWLRRRGGWTDVLKCV-VSTKPGFRSHWL-VATLCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGE 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bovinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          regulator Bcl-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cockerell G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (Rel. 40,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -GRFATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTE 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    virus associated-leukemogenesis is correlated of programmed cell death and increased expres
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Created)
                                                                                                                                                                                                                                                                                           cleaved
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                         by caspases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 229
                                                                                                                                                                                                                                                                                         during apoptosis. The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      expression
                                                                                        EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BAD, BAK and
                                                                                          a collaboration -
MBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cells
                                                                                       outstation
                                                                                                                                                                                                                                                                                                                                                                                    'n
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RESULT
BCL2_CI
ID 2_CI
ID 2_CI
ID 7_CI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROSITE; PS01062; BCL2_FAMILY; 1.
PROSITE; PS01080; BH1; 1.
PROSITE; PS01258; BH2; 1.
PROSITE; PS01259; BH3; 1.
PROSITE; PS01259; BH3; 1.
PROSITE; PS01260: DW4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF02180; BI
SMART; SM00337; I
SMART; SM00265; I
TIGREAMS; TIGROO
                                                                                                                                                                                                                                                                                                       BCL2_CRILO
Q9JJV8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MOD_RES
SEQUENCE
                                                                                                                                                                                                                                    16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Apoptosis regulator Bc1-2.
                                                                                                                                                                                    Cricetulus longicaudatus (Long-tailed hamster) (Chinese hamster). Eukaryota: Metazoa: Chordata: Craniata: Vertebrata: Euteleostomi;
                                                                                                                                                                                                                                                                                                                                            CRILO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DOMAIN
DOMAIN
                 MEDLINE=20431763; PubMed=10973819;
Tomicic M.T., Christmann M., Kaina B.;
"Cloning and functional analysis of cDNA encoding the protein.";
                                                                                                                                                      Cricetulus.
Biochem. Biophys. Res. Commun.
                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                  NCBI_TaxID=10030;
                                                                                                                                                                      Mammalia; Euthería;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Apoptosis,
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROSITE; PS01259;
PROSITE; PS01260;
PROSITE; PS50063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR004725;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR003093;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                            193 GPSMRPLFDFSWL-----SLKALLSLAL 215
                                                                                                                                                                                                                                                                                                                                                                                                                                              180 -VSTKPGFRSHWLVATLCSFGRFLKAAFFLLL 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17 KYIHYKLSQRGYEWDAGDAGAAPPGAAPAPGILSSQPGRTPAPSRTSPPPPPAAAAAGPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                37 EYVHARLLRAGLSW-----SAPERASPAPG-----GRLAE-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NWGRIVAFFEFGGVMCVESVNREMSPLVDSIALWMTEYLNRHLHTWIQDNGGWDAFVELY 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCV 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTAR----ERFATVVEELFRDGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----VCTVLLRLGDELEQIRPSVYRNVARQLHI-PLQSEPVVTDAFLAVAGHIFSAGI
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  U92434; AAB53319.1;
Q07817; 1MAZ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             00265; BH4;
TIGR00865;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IPR002475;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10
64
69
83
126
177
202
34
63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BC1-2;
BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A
                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BCL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  30
68
72
97
145
192
223
35
35
63
25099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BH4_1; 1.
BH4_2; 1.
                                                                                                                                                                      Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bcl2_BH4.
Bcl2_reg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15.0%;
23.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BC12_BH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BCL2_family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mitochondrion;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POLY-PRO.
POLY-ALA.
BH3.
BH1.
BH2.
POTENTIAL.
POTENTIAL.
CLEAVAGE (BY CASPASES) (BY SIMILARITY).
PHOSPHORYLATION (BY PKC) (BY SIMILARITY).
MW; ADIDDOAF98FFF1ID CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 164.5; DB Pred. No. 1.1e-07
                                                                                                                                                                    Sciurognathi; Muridae; Cricetinae;
                                                                                                                                                                                                                                                                                                                           PRT;
 275:899-903(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>-</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                           236
                                                                                                                                                                                                                                                                                                                           A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Phosphorylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      76;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                               hamster Bcl-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     229;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7;
 PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This
                   SITE
                                                                                                                                                                                                                                    SMART; SM00337; BCL;
SMART; SM00265; BH4;
TIGRFAMS; TIGR00865;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
                                                   DOMAIN
                                                                   DOMAIN
                                                                                                                                                                                                                                                                                     Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -
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 MOD_RES
                                                                                    DOMAIN
                                                                                                    DOMAIN
                                                                                                                   Apoptosis;
                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR002475;
InterPro; IPR000712;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 between
                                                                                                                                      PROSITE;
                                                                                                                                                                    PROSITE;
                                                                                                                                                                                      PROSITE;
                                                                                                                                                                                                                                                                                                                         InterPro;
                                                                                                                                                                                                                                                                                                                                       InterPro; IPR003093;
                                                                                                                                                                                                                                                                                                                                                                                            HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Tomicic M.
                                                                                                                                                                                                                                                                                                                                                                                            Q07817;
                                                                                                                                  3; PS50062; BCL2_FAMILY; 1

5; PS01080; BH1; 1.

6; PS01258; BH2; 1.

7; PS01259; BH3; 1.

8; PS01260; BH4_1; 1.

8; PS50063; BH4_2; 1.
                                                                                                                                                                                                                                                                                                                         IPR004725;
                                                                                                                   Transmembrane;
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망 δÃ В Š

10 90 133 184 209 . 64

104 152 152 199 230 65 70

BH2.
POTENTIAL.
CLEAVAGE (BY CASPASE-3 AND CASPASE-9).
PHOSPHORYLATION (BY PKC) (BY SIMILARITY).

Mitochondrion; Phosphorylation

Bcl2_BH4. Bcl2_reg.

Bcl2_BH BCL2_family.

bc1-2;

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release. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochnodria and/or by binding to the apoptosis-activating factor (APAF-1) (By similarity).

Forms homodiners, and heterodimers with BAX, BAD, BAK and Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity).

SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum.

DOMAIN: The BH4 domain is required for anti-apoptotic activity and for interaction with RAF-1 (By similarity).

Form: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle (By similarity). In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases (By similarity). Dephosphorylated by protein phosphatase 2A (PP2A) (By similarity). Companis the BH4 domain, has pro-apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptosis. The similarity: Companis 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

FINILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

FINILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
                                                                             entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                          use by non-profit institutions as long modified and this statement is not removed
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Hamster Bcl-2 protein
EMBL; AJ271720;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=21092839; PubMed=11181062;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   [2]
SEQUENCE FROM N.A.,
                                                                                                                                                                                                                                s SWISS-PROT entry is copyright. It is produced through a collaboration ween the Swiss Institute of Bioinformatics and the EMBL outstation - European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             caspase-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein is
    CAB92245.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AND CLEAVAGE BY CASPASES
                                                                                                                                                                                           institutions as long as its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cleaved in
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                                                                                                                  (See http://www.isb-sib.ch/announce/
                                                                                                                                                          Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      in
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RESULT
BCL2_MC
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Matches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Deng X., Ito T., Carr B., Mumby M., 
"Reversible phosphorylation of Bcl2 
bryostatin 1 is mediated by direct:
                                                                                                                                                                                                                                                                                                  MEDLINE=97277291; PubMed=9115213;
Ito T., Deng X., Carr B., May W.S. Jr.;
"Bcl-2 phosphorylation required for anti-apoptosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE-87187643; PubMed-3032455;
Negrini M., Silini E., Kozak C., Tsujimoto Y., Croce C.M.;
Nolecular analysis of mbcl-2: structure and expression of the murine gene homologous to the human gene involved in follicular lymphoma.";
Cell 49:455-463(1987).
                                                                                                                                                      phosphatase 2A*
                                                                                                                                                                                                                                                                                                                                                                                                                        "Isolation and characterization of the chicken in a variety of tissues including lymphoid and adult and embryo.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN-BALB/c;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOUSE
                                                                                                                                                                                                                               MEDLINE=99069407;
                                                                                                                                                                                                                                                                                                                                                                     PHOSPHORYLATION BY PKC,
                                                                                                                                                                                                                                                                                                                                                                                                            Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REVISIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=10090;
                                                                                                                                                                                                                                                    DEPHOSPHORYLATION BY PP2A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-92375724;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      157
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                                                                                                                                                                                                                                                                                            Biol.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -
               permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding the caspase of cytochrome c from the mitochondria and/or by binding the content of the
                                                         including factor-dependent lymphohematopoietic Regulates cell death by controlling the mitocho permeability. Appears to function
                                                                                                                    FUNCTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDVGDVDAAPLGAAPTPGIFSFQPESNPTPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               YLNRHLHTWIQDNGGWDAFVELYGPSVRPLFDFSWLSLKTLLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FVRKTLATWLRRRGGWTDVLKCV-VSTKPGFRSHWL-VATLCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FTAR----GREATVVEELERDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VHRDMAARTSPLRPIVATTGPTLSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----GRLAEVCTVLLRLGDELEQIRPSVYRNVAR----------
   apoptosis-activating
                                                                                                                                                                                                                                                                                                                                                                                                          Acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                  Chem. 273:34157-34163(1998)
                                                                                                                                                                                                                                                                                            Chem.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (Mouse)
                                                                                                                                                           mediated .".
                                                                                                                                                                                                                                                                                          272:11671-11673(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TISSUE-Liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Α,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PubMed-1508712;
                                                                                                                                                                                                                                  PubMed=9852076;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (ISOFORMS
                                                                                                                                                                                                                                                                                                                                                                                                        20:4187-4192(1992).
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   factor
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BECADF1EF3337228 CRC64;
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                                                                                                                                                                       ., May W.S. Jr.;
l2 following inte
c interaction wit
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 (APAF-1).
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                                                                              mitochondrial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Muridae;
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                                                                                                                                                                       interleukin
n with protei
                                                                                                                                                                                                                                                                                                                                                                                                                                              bcl-2 gene: expression
neuronal organs in
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                                                                                              neural cells.
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                                       Query Match
                                                                                                                                                                       DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                        PROSITE;
                                                                                                                                                                                                                                                                                                                                               PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This
                                     SEQUENCE
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                                                                                                                                                       DOMAIN
                                                                                                                                                                                                               DOMAIN
                                                                            VARSPLIC
                                                                                                                                    CRANSMEN
                                                                                                                                                                                                                                                                      PROSITE;
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promoting further caspase activity.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            membrane of the nuclear envelope and the endoplasmic reti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1. SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular
                                                                                                                                                                                                                                                                                              PTM: Proteolytically cleaved by caspases during apoptosis cleaved protein, lacking the BH4 domain, has pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                          Dephosphorylated by protein phosphatase 2A (PP2A)
                                                                                                                                                                                                                                                                                                                                                                                              occurs during the G2/M phase of the cell cycle. In the absence growth factors, Bcl2 appears to be phosphorylated by other protkinases such as ERKs and stress-activated kinases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         are produced by alternative splicing. TISSUE SPECIFICITY: Expressed in a va
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SUBUNIT: Forms homodimers, and heterodimers with Bcl-x(L). Heterodimerization with BAX requires in domains, and is necessary for anti-apoptotic act
                                                                                                                                                                                                                                                                        activity, causes the release of cytochrome c into the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   for interaction with RAF-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            variety of tissues
                                                                                                            1 (BH1) DOMAIN.
2 (BH2) DOMAIN.
3 (BH3) DOMAIN.
1 (BH4) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            anti-apoptotic
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a collaboration -
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entities requires a license agreement (S or send an email to license@isb-sib.ch). use by non-profit institutions a modified and this statement is not European Bioinformatics Institute. SWISS-PROT entry is copyright. It is produced through sen the Swiss Institute of Bioinformatics and the EM institutions as long removed (See http://www.isb-sib.ch/announce, There are no restrictions ng as its content is in Usage βģ EMBL for outstation 9

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EMBL; L31532; AAA37282
EMBL; M16506; AAA37281
EMBL; M16506; AAA37281
PIR; A25960; TVMSA1.
PIR; B25960; TVMSB1.
PIR; B25960; TVMSB1.
PIR; E37332; E37332.
HSSP: Q07817; 1MAZ.
                                                                                                                                                                                                                                                          SMART; SM00337; BCL;
SMART; SM00265; BH4;
TIGRFAMS; TIGR00865;
                                                                                                                                                    Apoptosis; Alter
Phosphorylation
                                                                                                                                                                                                                                                                                               Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                    InterPro; IPR000712; Bc12_BH.
InterPro; IPR003093; Bc12_BH4
InterPro; IPR004725; Bc12_reg
                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR002475;
                                                                                                                                                                                                                                                                                                                                                                            MGD; MGI:88138;
                                                                                                                                                                                                       PS01258;
PS01259;
                                                                                                                                                                                PS50063;
                                                                                                                                                                                                                                  PS01080;
                         236
                                                                                                                                                                   Alternative
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AAA37282.1; JC
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                         Ã,
                                                                                                                                                                                                                                  BH1;
                                                                                                                                                                               BH4_1; 1.
BH4_2; 1.
                                                                                                                                                                                                                                            BCL2_FAMILY;
                                                   104
152
199
230
230
70
                         26425
                                                                                                                                                                                                                                                            bcl-2;
                                                                                                                                                                                                                                                                                                                                                 BCL2_family.
Bcl2_BH.
  14.3%;
                                                                                                                                                                  splicing;
                         ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOINED
                                                             BH2.
POTENTIAL.
CLEAVAGE (BY CASPASES) (BY SIMILARITY).
PHOSPHORYLATION (BY PKC).
 Score
                                     DAFVELYGPSMRPLFDFSWLSLKTLLSLALVGACITLGAYL GHK -> VGACLVE (IN ISOFORM BETA).
                         AA85EF6B0766BE0A
                                                                                                                                                                  Transmembrane; Mitochondrion;
 157
5;
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 Length
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Best Local Similarity

22.4%;

Pred.

No. 4,6e-07;

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RESULT 5
AR1_XENLA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AR1_XENLA
Q91827;
01-NOV-1997
                                                                                                                                                                                                                                                          the European Bioinformatics Institute. The use by non-profit institutions as long a modified and this statement is not removed.
                                                                                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EW the European Bioinformatics Institute. There are no restr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Apoptosis regulator R1 (XR1) (Fragment).
Xenopus laevis (African clawed frog).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
Xenopodinae; Xenopus.
                                                                                                                                                        InterPro; IPR002475;
InterPro; IPR000712;
                                                                                                                                                                                                     EMBL;
                                                                                                                                                                                                                                entities requires a license agreement (some send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                             cell-survival genes.";
Gene 158:171-179(1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation updat
                                                                                     SMART; SM00337; BCL; 1.
SMART; SM00265; BH4; 1.
                                                                                                                Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cruz-Reyes J., Tata J.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=95331613; PubMed=7607538;
                                        PROSITE; PS01258; PROSITE; PS50062;
                                                                      PROSITE; PS01080;
                                                                                                                                            InterPro;
                                                                                                                                                                                        HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Cloning, characterization and expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=8355;
 DOMAIN
              Apoptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             157
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 VHREMAARTSPLRPLVATAGPALSPVPPCVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28 VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDAGDADAAPLGAAPTPGIFSFQPESNPMPA
                                                                                                                                                                                                                                                                                                                                            FUNCTION: COULD BE THE HOMOLOG OF MAMMALIAN BCL-W.
SUBBELLULAR LOCATION: Membrane-bound (Potential).
DEVELOPMENTAL STAGE: DEVELOPMENTAL REGULARION ONLY OCCURS IN
BRAIN OF MID-METAMORPHOSIC TO POST-METAMORPHOSIC TADPOLES AN
ADULTS, WHERE AN INCREASE OF SEVERAL FOLD HAS BEEN OBSERVED.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YLNRHLHTWIQDNGGWDAFVELYGPSMRPLFDFSWLSLKTLLS
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                                                                                                                                                                                      X82462; CAA57845.1;
Q07817; 1MAZ.
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                                                                                                                                           IPR003093;
                            Transmembrane.
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120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                        BH1;
BH2;
                                        BCL2_FAMILY;
                                                                                                                                                        BCL2_family.
Bcl2_BH.
                                                                                                                                           Bc12_BH4.
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вн1.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of two Xenopus bcl-2-like
                                                                                                                                                                                                                                                                         as its content
                                                                                                                                                                                                                                              http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                           Usage
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                                                                                                                                                                                                                                                                                                                    a collaboration
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Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BCL2 OR BCL-2.
Gallus gallus (Chicken).
Eukaryota; Metazoa; Chor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHICK
                                                                                                                                                                                                                                                                                                                                                                               Cazals-Hatem D.L., Louie D.C., Tanaka S., Reed J.C.; "Molecular cloning and DNA sequence analysis of cDNA encoding homologue of the Bcl-2 oncoprotein."; Biochim. Biophys. Acta 1132:109-113(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE=B-cell lymphoma;
MEDLINE=92379084; PubMed=1511008;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=92375724; PubMed=1508712; Eguchi Y., Ewert D.L., Tsujimoto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-APR-1993 (Rel. 25, Creat
01-APR-1993 (Rel. 25, Last
15-JUN-2002 (Rel. 41, Last
Apoptosis regulator Bcl-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q00709;
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                                       <del>:</del>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           adult and embryo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Isolation and characterization of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=9031;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Archosauria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BCL2_CHICK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           139
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19 DRWPTDKELVAQ----AKALGREYVHARLLRAGLSWSAPERASPAPGGRLAEVC---TVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        solation and characterization of the chicken bcl-2 gene: explantion of the chicken bcl-2 gene: explantion of the chicken bcl-2 gene: explantion and neuronal organs
                                                                                                    BCl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1 (By similarity). SUBCELLUIAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum. TISSUE SPECIFICITY: In adult chicken expressed, in thymus, spleen, kidney, heart, ovary and brain, with the highest levels in the thymus. In the embryo, highly levels expressed in all tissues with
DOMAIN: The BH4 domain is required for anti-apoptotic for interaction with RAF-1 (By similarity).
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
                                                                                                                                                                                                                                          the apoptosis-activating factor (APAF-1). SUBUNIT: Forms homodimers, and heterodimers with
                                                                                                                                                                                                                                                                              Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding t
                                                                                                                                                                                                                                                                                                                                                 FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoietic and neural c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AALCAESVNKEMSPLLPRIQDWMVTYLETNLRDWIQSNGGWNGFL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVL 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RAAGDEFEERFRQAFSEISTQIHV---TPGTAYARFAEVAGSLFQGGVNWGRIVAFFVFG
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39; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Acids Res.
                                                                                         levels in the bursa of Fabricius.
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207
228 AA;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Aves; Neognathae;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20:4187-4192(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chordata; Craniata; Vertebrata; Euteleostomi;
Veognathae; Galliformes; Phasianidae; Phasiani
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23.6%;
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Pred. No. 7.4e-07,
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BH1
                                                                       activity and
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RESULT 7
BCL2_HUMAN
ID BCL2_H
AC P10415
DT 01-MAR
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InterPro; IPR000712; Bcl2_BH.
InterPro; IPR003093; Bcl2_BH4.
InterPro; IPR003093; Bcl2_BH4.
InterPro; IPR004725; Bcl2_reg.
Pfam; PF00452; Bcl-2; 1.
Pfam; PF02180; BH4; 1.
SMART; SM00337; BCL; 1.
SMART; SM00355; BG1-2; 1.
PROSTUME, DESCACE, ECT.
                      BCL2_HUMAN STAN
P10415; P10416; Q16
01-MAR-1989 (Rel. 1
01-APR-1993 (Rel. 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CONFLICT
CONFLICT
SEQUENCE
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CONFLICT
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PROSITE;
PROSITE;
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PROSITE; E
PROSITE; E
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PIR;
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6; QL6197; Q13842;
Rel. 10, Created)
Rel. 25, Last sequence upd
Rel. 41, Last annotation u
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BH1.
BH2.
POTENTIAL.
POTENTIAL.
POTENTIAL.
(IN REF. 2).
GSAAASEVPAREGLEP ->
(IN REF. 2).
H -> T (IN REF. 2).
G -> V (IN REF. 2).
G -> V (IN REF. 2).
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      Science
[9]
                                                                                                                                                                               "Conversion
                                                                                                                                                                                                                                                                              Nature
[8]
                                                                         REVIEW ON PHOSPHORYLATION.
MEDLINE=21260650; PubMed=11368354;
RUVOIO P.P., Deng X., May W.S.;
                                                                                                                                                                                                                                                              CLEAVAGE
                                                                                                                                                                                                                                                                                                                                                                                                                       Nature
[7]
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hockenbery D., Nunez G., Milliman C., Schreiber R.D., Korsmeyer S.J.; "Bcl-2 is an inner mitochondrial membrane protein that blocks programmed cell death.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tanaka S., Louie D.C., Kant J.A., Reed J. "Frequent incidence of somatic mutations oncogenes of non-Hodykin's lymphomas."; Blood 79:229-237(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. (ISOFORM ALPHA).
MEDLINE-87002488; PubMed-2875799;
Cleary M.L., Smith S.D., Sklar J.;
"Cloning and structural analysis of cDNAs in the company of the co
      PHOSPHORYLATION
                                                                                                                                                                                                                                                                                                                     apoptosis
                                                                                                                                                                                                                                                                                                                                                            Yin
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Alternative promoters and exons, of the Bcl-2-Ig fusion gene in lym
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=88196071; PubMed=2834197;
MEDLINE=88196071; PubMed=2834197;
Seto M., Jaeger U., Hockett R.D., G
Goldman P., Korsmeyer S.J.;
                                                                                                                                                                                                                                      CLEAVAGE BY CASPASES, MEDLINE=98057466; Pub
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUBCELLULAR LOCATION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 1-131 FROM N.A. (ISOFORM MEDLINE=92096610; PubMed=1339299;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REVISIONS TO 96; 110 AND 237.
MEDLINE=92375724; PubMed=1508712;
Egychi Y., Ewert D.L., Tsujimoto Y.;
"Isolation and characterization of ti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa;
Mammalia; Eutheria;
                                    Phosphorylation of Bcl2 a deukemia 15:515-522(2001)
                                                                                                                                                                                                                                                                                               vin X.-M., Oltvai Z.N., Korsmeyes "BH1 and BH2 domains of Bc1-2 are "peptosis and heterodimerization Nature 369:321-323(1994).
                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=94239528;
                                                                                                                                                                                                                                                                                                                                                                                                   MUTAGENESIS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=86259760; PubMed=3523487;
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J. 7:123-131(1988)
                                                                                                                                                                                                                   E.H.-Y.,
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                                                                                                                                                                                                                                                                                                                                                                                                                                     348:334-336(1990).
                                                                                                                                                            ion of Bcl-2 to a Ba
278:1966-1988(1997).
                                                                                                                                                                                               H.-Y., Kirsch D
Hardwick J.M.;
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    ВУ
                                                           of Bcl2 and re
                                                                                                                                                                                                               PubMed=9395403;
rsch D.G., Clem R.J.,
                                                                                                                                                                                                                                                                                                                                                                            PubMed=8183370;
      ASK1/JNK1
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Primates;
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                                                                                                                                                                                                                                                                                                   , Korsmeyer S.J.,
of Bcl-2 are required for struction with Bax."
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in human follicular lymphoma.";
.S.A. 83:5214-5218(1986).
                                                                                                                                                                               Bax-like
                                                             regulation
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                lymphoma
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                                                                                                                                                                                                                   Ravi R.,
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                                                           apoptosis.";
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                                                                                                                                                                                                                     Bedi A.,
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Genew,
MIM; 151430; ...
InterPro; IPR002475; BCL2_Lam...
InterPro; IPR00712; Bcl2_BH.
InterPro; IPR003093; Bcl2_BH4.
InterPro; IPR004725; Bcl2_reg.
nfam; PF00452; Bcl-2; 1.
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EMBL;
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Mol. Cel
                                                                                                                                                                                                                                                                                                                 use by non-profit institutions as long modified and this statement is not removed entitles requires a license agreement (See
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"BCL-2 is ph
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                                                                                                                                        BL; M13995; AAA51814.1; ABL; M14745; AAA35591.1; -
BL; XN6487; CAA29778.1; -
BL; S72602; AAD14111.1; A
R; A29409; TVHUB1.
R; A29409; TVHUB1.
R; B29409; TVHUB1.
R; B29409; TVHUB1.
R; B29409; TVHUB1.
R; C37332; C37332.
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                                                                                                                                                                                                                                                                                                                                                                                                                                               regions.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4)
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              the apoptosis-activating factor (APAF-1).
SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and BC1-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1.
SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular subscriptions of the nuclear envelope and the endoplasmic reticulum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoletic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding the caspases.
                                                                                                                                                                                                                                                                                                                                                           ween the Swiss Institute of Bioinf
European Bioinformatics Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              membrane of the nuclear envelope and the endoplasmic reticulum ALTERNATIVE PRODUCTS: 2 isoforms; alpha (shown here) and beta; are produced by alternative splicing.
TISSUE SPECIFICITY: Expressed in a variety of tissues.
DOMAIN: The BH4 domain is required for anti-apoptotic activity for interaction with RAF-1.
                                                                                                                                                                                                                                                                                                                                                                                                            DATABASE: NAME-Atlas Genet. Cytogenet. Oncol. Haematol.;
WWW-"http://www.infobiogen.fr/services/chromcancer/Genes/BCL2ID49.html"
                                                                                                                                                                                                                                                                                                                                                                                                                                      DATABASE: NAME=Atlas Genet.
                                                                                                                                                                                                                                                                                                                                                                         SWISS-PROT entry is copyright. It is produced through a collaboration een the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                           M13994; AAA51813.1;
                                                                                                            HGNC:990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     is phosphorylated and inactivated by an ASK1/Jun kinase pathway normally activated at G(2)/M.";
                                                                                                                                                                                                                                                                                                       an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Biol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ichijo H.,
                                                                                                                               1MAZ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19:8469-8478(1999)
                                                                                   BCL2_family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Korsmeyer S.J.;
                                                                                                                                                                                                                                                         ALT_SEQ.
                                                                                                                                                                                                                  ALT_SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            variety of tissues. for anti-apoptotic activity and
                                                                                                                                                                                                                                                                                                                                                           There
                                                                                                                                                                                                                                                                                                                                               as its content
                                                                                                                                                                                                                                                                                                                http://www.isb-sib.ch/announce/
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RESULT
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BCLX_MC
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Best Local
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PROSITE; PS01080; BH1; 1.
PROSITE; PS01258; BH2; 1.
PROSITE; PS01259; BH3; 1.
PROSITE; PS01260; BH4_1; 1.
PROSITE; PS50063; BH4_2; 1.
                                   CONFLICT
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                             CONFLICT
                    Apoptosis regulator Bcl-x. BCL2L1 OR BCL2L OR BCLX.
                                                                                                                                                                                                                                                                                                                                                                                                                        MUTAGEN
MUTAGEN
           Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VARIANT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mitochondrion; Phosphorylation;
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                                                                                                                               GGWDAFVELYGPSMRPLFDFSWLSLKTLLS
                                                                                                                                                   GGWTDVLKCV-VSTKPGFRSHWL-VATLCS
                                                                                                                                                                    VVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDN
                                                                                                                                                                                       VAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRR
                                                                                                                                                                                                                                                 KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA
                                                                                                                                                                                                            APGAAAGPALSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTAR----GRFAT
                                                                                                                                                                                                                                                                                         1 Similarity
46; Conser
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187
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117
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64
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59
117
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 Chordata;
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bcl-2;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mutation
                                                                                                                                                                                                                                                                                        37;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL.

POTENTIAL.

POTENTIAL.

POTENTIAL:

PHOSPHORYLATION (BY PKC) (BY SIMILARITY).

DAFVELYGPSURPLEDESWISLKTILSLALVGACITIGAYL

THE -> VGASGDVS (IN ISOFORM BETA).
                                                                                                                                                                                                                                                                                                Score 153.5;
Pred. No. 1.
                                                                                                                                                                                                                                                                                                                                        LOSS OF ANTI-APOPTOTIC ACTIVITY.
W->A: NO HETERODIMERIZATION WITH BAX AND
LOSS OF ANTI-APOPTOTIC ACTIVITY.
I -> F (IN REF. 4).
P -> T (IN REF. 3).
S -> R (IN REF. 3).
R -> C (IN REF. 4).
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D->A:
G->A:
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V -> I (IN NON-H
Craniata; Vertebrata; Euteleostomi;
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                                                                                                                                                                                                                                                                                                                                3C49F2B714DC9CCB
                                                                                                                                                                                                                                                                                                                                                                                                           ABOLISHES CLEAVAGE BY CASPASE-3.
NO EFFECT ON CLEAVAGE BY CASPASE-3
NO HETERODIMERIZATION WITH BAX AND
                                                                                                                                                   197
                                                                                                                               222
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (IN NON-HODGKINS-LYMPHOMA;
                                       update;
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74;
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Metazoa;

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Thompson C.B., Nunez G.;
Thompson C.B., Nunez G.;
"bcl-XL is the major bcl-x mRNA form expressed during "bcl-XL is the major bcl-x mRNA form expressed during
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE-97289584; PubMed-9144489;
MEDLINE-97289584; PubMed-9144489;
Annzalez-Garcia M., Ekhterae D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE-98051053; PubMed-9390687; Yang X.-F., Weber G.F., Cantor H.; "A novel Bel-x isoform connected to apoptosis in T cells.";
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Kamesaki H., Michaud
Submitted (MAR-1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       localization of the mouse bcl-x gene. J. Immunol. 158:4750-4757(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A. (ISOFORM X(BETA))
STRAIN-C57BL/6 X CBA; TISSUE-Thymus;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Fang W., Rivard J.J., Mueller D.L., Beh. "Cloning and molecular characterization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  development and its product localizes Development 120:3033-3042(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gonzalez-Garcia M., Perez-Ballestero R., Ding L.,
                              J-DOMAIN: The BH4 domain is required for anti-
The BH1 and BH2 domains are required for both
with other Bc12 family members and for repres
PTM: Proteolytically cleaved by caspases during the control of the cleaved protein, lacking the similarity). The cleaved protein, lacking the apoptotic activity (By similarity).
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH11: SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH22: SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH31: SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH31: SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH41: SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=95052604;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TISSUE=Pre-B cell;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=95331139; PubMed=7607090;
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NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lymphocytes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mmunity 7:629-639(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Immunol. 153:4388-4398(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         similarity). Heterodimerization with BAX does not seem to be required for anti-apoptotic activity (By similarity).
SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR ENVELOPE FOR BCL-X(L). CYTOPLASMIC FOR BCL-X(DELTA-TM).
ALTERNATIVE PRODUCTS: 4 ISOFORMS: BCX-X(L) (SHOWN HERE), BCL-X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FUNCTION: Potent inhibitor of cell death. Inhibits activation of caspases (By similarity). Appears to regulate cell death by blocking the volatage-dependent anion channnel (VDAC) by binding to it and preventing the release of the caspase activator, cytochrome c, from the mitochondrial membrane. The Bcl-x(S)
                                                                                                                                                                                                                                                                                         DEVELOPMENTAL STAGE: BCL-X(BETA)IS I POSTNATAL TISSUES, WHEREAS BCL-X(L)
                                                                                                                                                                                                                                                                                                                                                         TISSUE SPECIFICITY: WIDELY EXPRESSED, WITH HIGHEST LEVELS IN THE BRAIN, THYMUS, BONE MARROW, AND KIDNEY. BCL-X(L) AND BCL-X(DELTA-TM) EXPRESSION IS ENHANCED IN B AND T LYMPHOCYTES THAT HAVE BEEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          isoform promotes apoptosis. SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and
                                                                                                                                                                                                                                                                    POSTNATAL TISSUES, POSTNATAL TISSUES.
                                                                                                                                                                                                                                                                                                                                                                                                                                SPLICING
                                                                                                                                                                                                                                                                                                                                           ACTIVATED
                                                                                                                                                                                                                                                                                                                                                                                                                                                        BCL-X(BETA)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FROM N.A. (ISOFUKMS)
57BL/6; TISSUE-Brain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        AND BCL-X(DELTA-TM); ARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PubMed=7963517;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (ISOFORM X(BETA)).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (ISOFORMS X(L); X(S) AND X(DELTA-TM))
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                  TO
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e EMBL/GenBank/DDBJ da
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            X(L)
                  BCL-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AND X(BETA)).
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tion of mouse bcl-x in
                                                                                                                                                                                             for repression of cell
                                                                                                                                                                                                                                                                                         EXPRESSED IN BOTH EMBRYONAL AND ) IS PREDOMINANTLY FOUND IN
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                                                                                                                                                                                                                         for both
                                                                                                                                                                                                                                               anti-apoptotic
                                                                                  (BH2)
                                        (BH4)
                                                                                                          (BH1)
                                                                                                                                                     during apo
                                                               (BH3)
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                                     DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                   HOWN HERE), BCL-X(S),
BY ALTERNATIVE
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                                                                                                                                                                                                                         heterodimerization
                                                                                                            DOMAIN
                                                                                                                                                                            apoptosis
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                                                                                                                                                     domain,
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to be
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Best Local
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SMART; SM00265; BH4; 1.

TIGRAMS; TIGRO0865; bcl-2; 1

PROSITE; PS50062; BCL2_FAMILY

PROSITE; PS01080; BH1; 1.

PROSITE; PS01258; BH2; 1.
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InterPro; IPR0020712; Bcl2_BH.
InterPro; IPR003093; Bcl2_BH4.
InterPro; IPR004725; Bcl2_reg.
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LNDHLEPWIQENGGW
                                          VRKTLATWLRRRGGW 172
                                                                                                                                                                         WHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI-- 114
                                                                                                                            QSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEF 157
                                                                                                                                                                                                                   ----SPAPGGR-
                                                                                  -TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATY 173
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AAC53460.1;
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AAA82173.1;
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AAA51040.1;
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22.1%;
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MISSING (IN ISOFORM BCL-X(S)).
DTFVDLYGNNAAAESRKGQERFNRWFLTGMTVAGVVLLGSL
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Pred. No. 1.
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BCLX_RAT
ID BCLX_RAT

STANDARD

PRT;

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RESULT

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J. Biol.
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"Expression of members of the bcl-2 gene family in the immature rat
ovary: equine chorionic gonadotropin-mediated inhibition of granulosa
cell apoptosis is associated with decreased bax and constitutive
bcl-2 and bcl-xlong messenger ribonucleic acid levels.";
Endocrinology 136:232-241(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Apoptosis regulator Bcl-x.
BCL2L1 OR BLC2L OR BCLX.
Rattus norvegicus (Rat).
                                                                                                                                                                                                                                   <u>:</u>
                                                                                                                                                                                                                                                                    <u>:</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Shiraiwa N., Inohara N., Okada S., Yuzaki M., Shoji S.-I., "An additional form of rat Bcl-x, Bcl-xbeta, generated by unspliced RNA, promotes apoptosis in promyeloid cells."; J. Biol. Chem. 271:13258-13265(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE-Brain;
Wesselingh S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Rodentia;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Crystal structure of rat Bcl-xL. Implications for the function the Bcl-2 protein family.";
J. Biol. Chem. 272:27886-27892(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS). MEDLINE=98010630; PubMed=9346936;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN-Sprague-Dawley; TISSUE-Ovary; MEDLINE-95129487; PubMed-7828536;
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Michaelidis T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Aritomi M
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2
activity (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4
                                                                                                                                                                        ALTERNATIVE PRODUCTS: 3 ISOFORMS; BCL-X(L) (SHOWN HERE), BCL-X(S) AND BCL-X(BETA); ARE PRODUCED BY ALTERNATIVE SPLICING. TISSUE SPECIFICATY: EXPRESSED IN MOST TISSUES. BCL-X(BETA) IS SPECIFICALLY EXPRESSED IN CEREBELLUM, HEART, AND THYMUS. IN THE OVARY, THE PREDOMINANT FORM IS BCL-X(L), WITH A SMALL BUT DETECTABLE LEVEL OF BCL-X(S).
                                                                                                                                                                                                                                                                                                 cytochrome c, from the mitochondrial membrane. The Bcl-x($) are Bcl-x(beta) isoforms promote apoptosis.
SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and Bcl-2 (similarity). Heterodimerization with BAX does not seem to be required for anti-apoptotic activity (By similarity).
SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR
                                                                                                                       DOMAIN: The BH4 domain is required for anti-apoptotic activity. The BH1 and BH2 domains are required for both heterodimerization with other Bc12 family members and for repression of cell death.
                                                                                                                                                                                                                                                                                                                                                                                                                        FUNCTION: Potent inhibitor of cell death. Inhibits activation of caspases (By similarity). Appears to regulate cell death by blocking the volatage-dependent anion channnel (VDAC) by binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                             FUNCTION: Potent inhibitor of cell
                                                                                        cleaved protein,
                                                                                                                                                                                                                                                                                    ENVELOPE (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                          to it and preventing the release of the caspase
                                                                                                        Proteolytically
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (JUN-1995) to
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              , Kunishima N., Inohara N., Ishibashi Y.,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (ISOFORMS X(L) AND X(S)).
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                                                                                        ally cleaved by clacking the BH4
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AND X(S)).
                                                                                        and for repression of cell caspases during apoptosis. 4 domain, has pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Veliuona M., Hardwick
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(BH2)
(BH3)
(BH4)
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158
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                                                                                                    TDKELVAQAKALGREYVHARLLRAGLSWS----
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1AF3;
VRKTLATWLRRRGGW
                                                                                   SNRELVV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  X82537;
X82537;
U10579;
U72350;
U72349;
U34963;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SWISS-PROT
                               QSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEF
                                                  WHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI--
                                                                 ----SPAPGGR------LAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPL
                                                                                                                                                                                                                                                                                                                                                                                                      PF00452; Bc1-2; PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S76513;
S78284;
                -TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATY
                                                                                                                                                                                                                                                                                                                                                                                     SM00337; BCL;
SM00265; BH4;
                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                            PS50063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       the
                                                                                                                                                                                                                                                                                                                                                                       PS50062;
                                                                                                                                                                                                                                                                                                                                                                                                                        IPR000712;
IPR003093;
IPR004725;
                                                                                                                                                                                                                                                                                                                                             PS01259
                                                                                                                                                                                                                                                                                                                                                     PS01258
                                                                                                                                                                                                                                                                                                                                                              PS01080;
                                                                                                                                                                                                                                                                                                                                                                              TIGR00865;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  IPR002475;
                                                                                                                                                                                                                                                                                                                    Mitochondrion;
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189
                                                                                                                    Conservative
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CAA57887.1;
AAA19257.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Swiss Institute of Bio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAC60701.1;
AAC60702.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAC60701.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAA77686.1;
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                                                                                                                                                                                                                                                                                                                            BH4_
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BH4_2;
                                                                                                                                                                                                                                                                                                                                                                     BCL2_FAMILY;
                                                                                                                                                                                                                                                                                                                                             BH3;
                                                                                                                                                                                                                                                                                                                                                              BH1;
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148
195
226
233
                                                                                  DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEPERETPSAINGNPS
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Bcl2_BH4.
Bcl2_reg.
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                                                                                                                           13.7%;
22.1%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      institutions as long as its content
                                                                                                                                                       MW.
                                                                                                                                                                                                                                                                                                                    Alternative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ALT_INIT.
                                                                                                                     29;
                                                                                                                                                           IDYSGDIPGLL (IN ISOFORM BC
R -> Q (IN REF. 1).
F -> S (IN REF. 2).
A -> E (IN REF. 2).
I -> L (IN REF. 4).
A -> V (IN REF. 4).
FF -> SS (IN REF. 4).
A -> T (IN REF. 4).
A -> P (IN REF. 4).
A -> P (IN REF. 4).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  is not removed. Usage by and for agreement (See http://www.isb-sib
                                                                                                                                                                                                                                        MISSING (IN ISOFORM BCL-X(S)).
DTFVDLYGNNAAAESRKGQERFNRWFLTGMTVAGVVLLGSL
FSRK -> VRTTPLVCPPLVCLSSVEIPNCPFWSPGMVVED
                                                                                                                                                                                                                                                                 BH2.
POTENTIAL.
                                                                                                                             Pred.
                                                                                                                                      Score
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                                                                                                                                                     2B62B6C63864BC8F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ght. It is produced through Bioinformatics and the EM
                                                                                                                     Mismatches
                                                                                                                            No.
                                                                                                                                      150.5;
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                                                                                                                                                                                                                                                                                                                   splicing;
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                                                                                                    ---APERA-----
                                                                                                                                      DB 1;
                                                                                                                     68;
                                                                                                                                                                                                                                                                                                                   Transmembrane;
                                                                                                                     Indels
                                                                                                                                    Length
                                                                                                                                                                                                                                 BCL-X(BETA))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              restrictions
                                                                                                                                      233;
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                                                                                                                    Gaps
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Matches 46
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                                                                                                                                                                                                   PROSITE; PS01259; BH3; PROSITE; PS50062; BCL2.
                                                                                                                                                                                                                                      Pfam; PF00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
PROSITE; PS01080; BH1; 1.
PROSITE; PS01258; BH2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   U1-FEB-1995 (Rel. 31, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Apoptosis regulator BAX, cytoplasmic isoform beta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BAXB_HUMAN Q07814;
                                                                                             SEQUENCE
                                                                                                                                       DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   or send
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               modified and this statement is not removed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                            apoptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                       PIR; B47538; B47538.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; L22474; AAA03620.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           entities requires a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           accelerates programmed cell death.";
Cell 74:609-619(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=93364978; PubMec
Oltvai Z.N., Milliman C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-FEB-1995
                                                                                                                                                                                                                                                                                                                               InterPro; IPR002475; InterPro; IPR000712;
                                                                                                                                                                                                                                                                                                                                                                           мім; 600040;
                                                                                                                                                                                                                                                                                                                                                                                                 3enew;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Bc1-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TISSUE SPECIFICITY: EXPRESSED IN A WIDE VARIETY OF TIDOMAIN: INTACT BH3 DOMAIN IS REQUIRED BY BIK, BID, BBA, BBAX FOR THEIR PRO-APOPTOTIC ACTUITY AND FOR THEIR INWITH ANTI-APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.

APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   by non-profit institutions as long
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HOMOLOG E1B 19K PROTEIN.
SUBUNIT: FORMS HOMODIMERS AND HETERODIMERS
E1B 19K PROTEIN, BCL-X(L), MCL-1 AND A1.
SUBCELLULAR LOCATION: Cytoplasmic.
ALTERNATIVE PRODUCTS: THE MEMBRANE ISOFORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ANTAGONIZING THE APOPTOSIS REPRESSOR BCL-2 (HOMOLOG EIR 19% DECEPTOR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CYTOPLASMIC ISOFORMS, BETA, ALTERNATIVE SPLICING.
        l Similarity
46; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        heterodimerizes
                                                                                                                                                                                                                                                                                                                                                                                           HGNC:959; BAX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   s requires a license agreement (S an email to license@isb-sib.ch).
                                                                                    59
98
150
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                                                                                                                                                                            Alternative
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(Rel. 41,
        Conservative
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             72 FAMIL.
Ve splicing.
73 BH3.
118 BH1.
165 BH2.
165 BH2.
165 BH2.
167 MW; F69DCD70F960192F CRC64;
166; Tnd
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118
165
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Primates;
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                                                                                                                                                                                                                                                                                                                                                       BCL2
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Created)
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                                                                                                                                                                                                                                                                                                                                                     _family.
  29;
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ivo with a conserved homolog,
      Score 148.5;
Pred. No. 2.76
Pred. Mismatches
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2.7e-06;
72;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Usage
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                                                218;
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        13;
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Q07817; Q92976;
Q1-FEB-1995 (Rel. 31, C
Q1-FEB-1995 (Rel. 31, L
15-JUN-2002 (Rel. 41, L
                     cell
                                                            Muchmore S.W.,
                                                                                                                Thompson C.B., Fesik S.W.;
"Structure of Bcl-xL-Bak peptide regulators of apoptosis.";
                                                                                                                                                           MEDLINE=97172562; PubMed=9020082; Sattler M., Liang H., Nettesheim
                                                                                                                                                                                                     "Bax-independent inhibition of apoptosis by Bcl-XL."; Nature .379:554-556(1996).
                                                                                                                                                                                                                                    MEDLINE-96170038; Publ
Cheng E.H.-Y., Levine
                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A. Inohara N., Ohta S
                                                                                                                                                                                                                                                                                                                                                                                                             Cell
                                                                                                                                                                                                                                                                                                                                                                                                                    Boise L.H., González-Garcia M., Postema C.E.
Turka L.A., Mao X., Nunez G., Thompson C.B.,
"bcl-x. a bcl-z-related gene that functions
of apoptotic cell death.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A. (ISOFORMS X(L) AND MEDLINE=93364977; PubMed=8358789;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Apoptosis regulator Bcl-x. BCL2L1 OR BCL2L OR BCL2L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HUMAN
                            "X-ray and NMR structure
                                        Yoon H.S., Nett
Ng S.L., Fesik
                                                                        MEDLINE=96256675;
                                                                                                       Science
                                                                                                                                               Eberstadt M., Yoon H.S.,
                                                                                                                                                                                  STRUCTURE
                                                                                                                                                                                                                           Korsmeyer S.J.;
                                                                                                                                                                                                                                                          MUTAGENESIS OF
                                                                                                                                                                                                                                                                                          with
                                                                                                                                                                                                                                                                                                             Korsmeyer
                                                                                                                                                                                                                                                                                                                          Sedlak T.W.,
                                                                                                                                                                                                                                                                                                                                   MEDLINE=95372373;
                                                                                                                                                                                                                                                                                                                                               MUTAGENESIS
                                                                                                                                                                                                                                                                                                                                                                  Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=9606;
                                                                                  X-RAY CRYSTALLOGRAPHY (2.2
                                                                                                                                                                                                                                                                                                  "Multiple Bcl-2 family members demonstrate selective
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        124
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                                                                                                                                                                                                                                                                                         Bax."
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PTSSEQIMKTGALLLQGFIQDRAGRMG--GEAPELALDPVPQDASTKKLSECLKRIGDEL
                     death
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PTDKELVAQAKALGRE-YVHARLLRAGLSWSAPERA-SPAP-GGRLAEVCTVLLRLGDEL
                                                                                                                                                                                                                                                                                                                                                                                                           74:597-608(1993).
                                                                                                                                                                                                                                                                              Natl.
                                                                                                        275:983-986(1997).
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                                                     Nettesheim
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                                          S.W.;
                                                              Sattler M.,
                                                                                                                                                                                                                                                          BH1 AND
                                                                                                                                                                                                                                                                                                                                              GLY-138, AND HETERODIMERIZATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                      PubMed=8692274;
                                                                                                                                                                                                                                                PubMed=8596636;
                                                                                                                                                                                                                                                                               Sci.
                                                                                                                                                                                                                                                                                                                                    PubMed=7644501;
                                                                                                                                                                                                                                                                                                                                                                                       (ISOFORM
                                                                                                                                                                                                                                                                                                                         Z.N.,
                                                   D.,
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Last sequence
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                                                                                                                                                                                                                                                          BH2 DOMAINS.
                                of
                                                                                                                                                Shuker S.B.,
                                                   ·Chang
                                                                                                                                                                                                                                                                                                                       Yang
                                                                                                                                                                                                                                     Boise L.H.,
                                                             Liang
                                                                                   ANGSTROMS),
                               human Bcl-xL,
                                                                                                                                                                                                                                                                                                                                                                  EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                       BETA)
                                                                                                                                                                                                                                                                               92:7834-7838(1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
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в.s.,
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                                                                                                                                                                                                                                                                                                                      Wang
                                                                                                                                               Meadows
., Chang B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      update)
                                                   Meadows R., Thompson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     233
                                                                                                                                                                                                                                     Thompson C.B., Hardwick J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         X(S))
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                                an
                                                                                                                            recognition
                                                                                    STRUCTURE
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                                                                                                                                                 B.S.,
                                                                                                                                                                                                                                                                                                                          Boise
                                                   ; R.P., Ha
son C.B.,
                                inhibitor of programmed
                                                                                                                                                           R.P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             177
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                                                  Harlan
3., Wong
                                                                                                                                                                                                                                                                                                                          L.H.,
                                                                                                                                                             Harlan J.E.,
                                                                                    BY NMR
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TIGREAMS; TIGRO0865; bcl-2; 1.

PROSITE; PS50062; BcL2 FAMILY; 1

PROSITE; PS01080; BH1; 1.

PROSITE; PS01258; BH2; 1.

PROSITE; PS01259; BH3; 1.

PROSITE; PS01260; BH4_1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a clear the swiss Institute of Bioinformatics and the EMBL the European Bioinformatics Institute. There are no restrict use by non-profit institutions as long as its content is
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DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                       modified and this statement
                                                    Apoptosis; Mi
3D-structure.
                                                                                                                                                                                                       Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1
                                                                                                                                                                                                                                            InterPro; IPR002475;
InterPro; IPR000712;
InterPro; IPR003093;
                                                                                                                                                                                                                                                                                                      Genew;
                                                                                                                                                                                                                                                                                                                 PDB; 1LXL;
PDB; 1MAZ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <del>-</del>
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MEDLINE-98118550; PubMed-9435230;
Clem R.J., Cheng E.H.-Y., Karp C.L., Kirsch D.G.
Takahashi A., Kastan M.B., Griffin D.E., Earnshe
                                         DOMAIN
                                                                                 PROSITE;
                                                                                                                                                                                                                                  InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Modulation of cell death bx Bcl-xL through caspase interaction.";
Proc. Natl. Acad. Sci. U.S.A. 95:554-559(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hardwick J.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ALTERNATIVE PRODUCTS: 3 ISOFORMS; BCL-X(L) (SHOWN HERE), BCL-X(S) AND BCL-X(BETA); ARE PRODUCED BY ALTERNATIVE SPLICING.

TISSUE SPECIFICITY: BCL-X(S) IS EXPRESSED AT HIGH LEVELS IN CELLS THAT UNDERGO A HIGH RATE OF TURNOVER, SUCH AS DEVELOPING LYMPHOCYTES. IN CONTRAST, BCL-X(L) IS FOUND IN TISSUES CONTAINING LONG-LIVED POSTMITOTIC CELLS, SUCH AS ADULT BRAIN.

DOMAIN: The BH4 domain is required for anti-apoptotic activity. DOMAIN: The BH4 domains are required for both heterodimerization with other Bcl2 family members and for repression of cell death. DTM: Proteolytically cleaved by caspases during apoptosis. The
                                                                                                                                                                                                                                                                                                              ; 223116; CAA80662.1;
; 223115; CAA80661.1;
; U72398; AAB17354.1;
; U72398; OCT-97.
; 1BXL; 29-OCT-97.
; 1LXL; 21-APR-97.
; 21-APR-97.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     with other Bcl2 1
PTM: Proteolytica
cleaved protein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   apoptotic activity.
SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              isoform promotes apoptosis SUBUNIT: Bcl-x(L) forms her
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       caspases (By similarity). Appears to regulate cell death by blocking the volatage-dependent anion channel (VDAC) by binding to it and preventing the release of the caspase activator, cytochrome c, from the mitochondrial membrane. The Bcl-x(S)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FUNCTION: Potent inhibitor of cell death.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ENVELOPE (BY SIMILARITY). ALTERNATIVE PRODUCTS: 3 I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Heterodimerization with BAX
                                                                                                                                                                                                                                                                                                                                            lbxL;
                                                                                                                                                                            SM00337;
SM00265;
                                                                                                                                                                                                                                                                                                 HGNC:992; BCL2L1
                                                                               PS50063;
                                                                                                                                                                                                                                  IPR004725;
                                                                 Mitochondrion;
86
129
180
                                                                                                                                                                            BH4;
                                                                              ; BH4_1; 1.
; BH4_2; 1.
24
100
148
195
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Bcl2_reg.
                                                                                                                                                                                                                                                        BCL2_family.
Bcl2_BH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      lacking
                                                                Alternative splicing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              heterodimers with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      aved by caspases the BH4 domain,
BH4
BH3
BH1
BH2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 does
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kirsch D.G., Ueno K.,
.E., Earnshaw W.C., Veliuona M.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                           (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 seem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (BH1)
(BH2)
(BH3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (BH4)
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DOMAIN.
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Best Local
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                                                                                                                                                                                                                                                 BCLX_PIG STANDARD
077737;
15-JUL-1999 (Rel. 38, C
15-JUL-1999 (Rel. 38, L
15-JUN-2002 (Rel. 41, L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MUTAGEN
CONFLICT
SEQUENCE
                                                                                                                                                                                                                      Apoptosis regulator Bcl-x.
BCL2L1 OR BLC2L OR BCLX.
Sus screen 195-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SITE
VARSPLIC
VARSPLIC
                               short-term hibernating myocardium.",

. Mol. Cell. Cardiol. 31:147-158(1999).

-!- FUNCTION: Potent inhibitor of cell death. Inhibits activate caspases (By similarity). Appears to regulate cell death belocking the volatage dependent anion channnel (VDAC) by be to it and preventing the release of the caspase activator, cytochrome c, from the mitochondrial membrane.

-!- SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and Bcl
                                                                                                                                                                                          Sus scrofa (Pig).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
                                                                                                                         Bartling B., Hoffmann J., Holtz J., "Quantification of cardioprotective"
                                                                                                                                            MEDLINE=99171363;
                                                                                                                                                                                 NCBI_TaxID=9823;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MUTAGEN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4
          similarity). Heterodimerization with BAX does not seem required for anti-apoptotic activity (By similarity).
 required for SUBCELLULAR
                                                                                                                                                                                                                                                                                                                                                          LNDHLEPWIQENGGW
                                                                                                                                                                                                                                                                                                                                                                                VRKTLATWLRRRGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SNRELVV-----DFLSYKLSQKGYSWSQFSDVEENRTEAPEGTESEMETPSAINGNPS
                                                                                                                                                                                                                                                                                                                                                                                                                           QSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEF
                                                                                                                                                                                                                                                                                                                                                                                                                                                 WHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----SPAPGGR--
                                                                                                                                                                                                                                                                                                                                                                                                -TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIAAWMATY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
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                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                 PubMed=10072723;
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22.1%;
                                                                                                                                                                                                                                                              Created)
Last sequence update)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 146.5; DB 1;
Pred. No. 4.3e-06;
29; Mismatches 68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WD->GA: REDUCES ANTI-APOPTOTIC ACTIVITY BY ABOUT HALF.
D->A: NO EFECT ON CASPASE-1 CLEAVAGE.
G->A (IN REF. 1; CAA80661).
; E09D3CDD851AE9BE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            G->A: NO I
G->E: NO I
D->A: NO I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DTFVELYGNNAAAESRKGQERFNRWFLTGMTVAGVVLLGSL
FSRK -> VRTKPLVCPFSLASGQRSPTALLLYLFLLCWVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLEAVAGE BY CASPASE-1.
MISSING (IN ISOFORM BCL-X(S))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CASPASE-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACTIVITY
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                                                                                                                                                                                                                                                                                                  PRT;

    LAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPL

                                                                                                                         gene
                                                                                                                                     Schulz R., Heusch G.,
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                                                                                                                                                                                                                                                                                                  233
                                                                                                                                                                                                                                                   update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HETERODIMERIZATION WITH BAX.
HETERODIMERIZATION WITH BAX.
EFECT ON CASPASE-1 CLEAVAGE.
EFECT ON CASPASE-1 CLEAVAGE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NO HETERODIMERIZATION WITH LOSS OF ANTI-APOPTOTIC
                                                                                                                          expression in
                                                                                                                                                                                                                                                                                                  A
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                                                                                        activation
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                                                                                                                                    Darmer
                     Bcl-2
to be
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RESULT 13
BAXA_HUMAN
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                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 43
 BAXA_HUMAN
Q07812;
Q1-FEB-1995
Q1-FEB-1995
                                                                                                                                                                                                                                                                                                                                               SMART; SM00337; BCL; 1
SMART; SM00265; BH4; 1
TIGRPAMS; TIGR00865; b
PROSITE; PS50062; BCL2
PROSITE; PS01080; BH1;
                                                                                                                                                                                                                                                            DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                               PROSITE;
                                                                                                                                                                                                                                                                                    DOMAIN
DOMAIN
                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              use by non-profit institutions as long modified and this statement is not removed. entities requires a license agreement (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This
                                                                                                                                                                                                                                                                              DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                   Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                              HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -
                                                                                                                                                                                                                                                                                                               PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro;
                                                                        174 LNDHLEPWIQENGGW
                                                                                        158
                                                                                                          115
                                                                                                                                                                                                23
                                                                                                                           98
                                                                                                                                             57
                                                                                                                                                             57
                                                                                                                                                                               4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       similarity). The cleaved protein, lacking the apoptotic activity (By similarity). SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        s SWISS-PROT entry is copyright. It is produced ween the Swiss Institute of Bioinformatics and European Bioinformatics Institute. There are r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ENVELOPE (BY SIMILARITY).

DOMAIN: The BH4 domain is required for anti-apoptotic acti
The BH1 and BH2 domains are required for both heterodimeri
with other Bc12 family members and for repression of cell
PTM: Proteolytically cleaved by caspases during apoptosis
similarity). The cleaved protein, lacking the BH4 domain,
                                                                                                                                           \textbf{WHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI---}
                                                                                                                                                                                SNRELVV-----
                                                                                                                                                                                              TDKELVAQAKALGREYVHARLLRAGLSWS------APERA-----
                                                                                        VRKTLATWLRRRGGW
                                                                                                                         QSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEF
                                                                                                                                                             ----SPAPGGR------LAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPL
                                                                                                          -TPGTAYQSFEQVLNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIATWMATY
                                                                                                                                                                                                                                                                                                                                                                                         PF00452; Bcl-2; 1. PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                             AJ001203; CAA04597.1; -. Q07817; IMAZ.
                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                         PS01258;
                                                                                                                                                                                                                                                                                                                                                                                                                  IPR002475; BCL2_family. IPR000712; BCL2_BH. IPR003093; BCL2_BH4.
                                                                                                                                                                                                                                                                                                                                                                                                           IPR004725; Bcl2_reg.
                                                                                                                                                                                                                                                  210
                                                                                                                                                                                                                                                                                                      Mitochondrion;
  (Rel.
                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                   86
129
180
                                                                                                                                                                                                                                                  AA;
                            STANDARD;
                                                                                                                                                                                                                                                                                                                                            ; BCL2_FAMILY; BH1; 1.
                                                                                                                                                                                                                                                                                                              BH4_1; 1.
BH4_2; 1.
 31,
31,
                                                                                                                                                                                                                                                                                                                               внз;
                                                                                                                                                                             -DFLSYKLSQKGYSWSQFTDVEENRTEAPEGTESEAETPSAINGNPS
                                                                                                                                                                                                                                                            24
100
148
195
226
                                                                        188
                                                                                                                                                                                                                         13.3%;
22.1%;
                                                                                                                                                                                                                                                  26061 MW;
                                                                                        172
          Created)
   Last
                                                                                                                                                                                                                                                                                                      Transmembrane
  sequence
                                                                                                                                                                                                                 29;
                                                                                                                                                                                                                         Pred. No.
                                                                                                                                                                                                                                                                   BH1.
BH1.
BH2.
                                                                                                                                                                                                                                 Score 146.5;
                                                                                                                                                                                                                                                             POTENTIAL
                                                                                                                                                                                                                                                  18BF6FA0441912B2 CRC64;
                                                                                                                                                                                                                 Mismatches
  update
                            192
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                                                                                                                                                                                                                         4.3e-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             There are no rest
                            Ą
                                                                                                                                                                                                                                 DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Usage
                                                                                                                                                                                                                 68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN.
DOMAIN.
                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      poptotic activity.
heterodimerization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        through
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        bу
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and
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                                                                                                                                                                                                                                 233;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     death.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                outstation
                                                                                                                                                                                                                Gaps
                                                                                                                           157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            pro.
                                                                                                                                                             97
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               way
                                                                                                                                                                                                                ŝ
 Interpro; IPR002475; Bc
Interpro; IPR000712; Bc
Pfam; PF00452; Bcl-2; 1
SMART; SM00337; BcL; 1.
PROSITE; PS50062; BCL2
                                                                                                                                                    This
                                             MIM;
                                                     Genew; HGNC:959; BAX
                                                                     EMBL; L22473; AAA03619
PIR; A47538; A47538.
                                                            HSSP; Q07817;
                                             600040;
```

1MAZ

BCL2_FAMILY;

BCL2_family. Bcl2_BH.

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between the Swiss Institute of Bioinformatics and the Ethe European Bioinformatics Institute. There are no rest use by non-profit institutions as long as its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Blood 91:2991-2997(1998).

-i FUNCTION: ACCELERATES PROGRAMMED CELL DEATH BY BINDING TO, AN ANTAGONIZING THE APOPTOSIS REPRESSOR BCL-2 OR ITS ADENOVIRUS HOMOLOG E1B 19K PROTEIN. INDUCES THE RELEASE OF CYTOCHROME C. ACTIVATION OF CASPASE-3, AND THEREBY APOPTOSIS.

-i- SUBUNIT: FORMS HOMODIMERS AND HETERODIMERS TOGETHER WITH BCL-E1B 19K PROTEIN, BCL-X(L), MCL-1 AND A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=93364978; PubMed=8358790; Oltvai Z.N., Milliman C.L., Korsmeyer "Bcl-2 heterodimerizes in vivo with a accelerates programmed cell death."; Cell 74:609-619(1993).
  or send an
                         modified and this statement is not removed. entities requires a license agreement (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Meijerink J.P.P., Mensink E.J.B.M., Wang K., Sedlak T.W., Sloetjes A.W., de Witte T., Waksman G., Korsmeyer S.J.; "Hematopoietic malignancies demonstrate loss-of-function mutations of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Chittenden T., Flemington C., Houghton Elangovan B., Chinnadural G., Lutz R.J "A conserved domain in Bak, distinct f death and protein binding functions."; EMBO J. 14:5589-5596(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VARIANT PLASMACYTOMA GLU-11, VARIANT T-CELL ACLEUKEMIA ARG-67, AND VARIANT BURKITT LYMPHOMA MEDLINE=98200607; PubMed=953151;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Mammalia; Eutheria; NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=96091131;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MUTAGENESIS,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TISSUE=B-cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Apoptosis regulator BAX, membrane isoform alpha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15-JUN-2002 (Rel. 41, Last annotation update)
                                                                                                                                                                                                             hematopoietic malignancies as T-cell acute lymphoblastic Burkitt lymphoma, and plasmacytoma.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                              TISSUE SPECIFICITY: EXPRESSED IN A WIDE VARIETY OF DOMAIN: INTACT BH3 DOMAIN IS REQUIRED BY BIK, BID, BAX FOR THEIR PRO-APOPTOTIC ACTIVITY AND FOR THEIR WITH ANTI-APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ALTERNATIVE PRODUCTS: THE MEMBRANE ISC
CYTOPLASMIC ISOFORMS, BETA, GAMMA AND
ALTERNATIVE SPLICING.
                                                                                                                                                                                                                                                                                                                                                                              DISEASE: Defects in BAX are found in some
                                                                                                                                                                                                                                                                                                                                                                                                          APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.
                                                                                                                                                           SWISS-PROT entry is copyright. It is produced through
email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AND FUNCTION OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FUNCTION OF BH3
PubMed=8521816;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Houghton
Lutz R.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a conserved homolog, Bax, that
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ISOFORM ALPHA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Α.Β.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BH1
                      http://www.isb-sib
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACUTE LYMPHOBLASTIC MA VAL-108.
                                               Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ebb R.G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and
                                                                                                                                                                                                                                                                                                                                                                              cell lines
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOGETHER WITH BCL-2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  вн2,
                                                  ьy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A AND THE THREE GENERATED BY
                                                                                                        restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BAK, BAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                             BAK, BAD AND INTERACTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mediates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gallo
                                                                                                                                    EMBL
                                                                                                                                                                                                                                                                                                                                                                                    from
                                                                                                                                    a collaboration - MBL outstation
                                                     for
                                                                                                                                                                                                                                                                                                                                                        leukemia
                            .ch/announce/
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROSITE;
PROSITE;
PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence up
15-JUN-2002 (Rel. 41, Last annotation
Apoptosis regulator R11 (XR11)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                               cell-survival genes.";
Gene 158:171-179(1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      XENLA
                                               use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AR11_XENLA
Q91828;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VARIANT
                      modified
                                                                                                                                                                                                                                                                                                                                                                       Cruz-Reyes J., Tata J.R.;
"Cloning, characterization
                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=95331613; PubMed=7607538;
                                                                                                                                                                                                                                                                                                                                                                                                                                                TISSUE=Head
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=8355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Xenopus laevis (African clawed frog)
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Disease mu
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          124
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22 PTDKELVAQAKALGRE-YVHARLLRAGLSWSAPERA-SPAP-GGRLAEVCTVLLRLGDEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local
                    s SWISS-PROT entry is copyright. It is produced through ween the Swiss Institute of Bioinformatics and the EN European Bioinformatics Institute. There are no rest; by non-profit institutions as long as its content iffied and this statement is not removed. Usage by and
                                                                                                                                                FUNCTION: CONFERS STRONG PROTECTION AGAINST CELL DEATH.
SUBCELLULAR LOCATION: Membrane-bound (POtential).
DEVELOPMENTAL STAGE: DEVELOPMENTAL REGULATION ONLY OCCURS IN
BRAIN OF MID-METAMORPHOSIC TO POST-METAMORPHOSIC TADPOLES AN
ADULTS, WHERE AN INCREASE OF SEVERAL FOLD HAS BEEN OBSERVED.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ALCTKVPELIRTIMGWTLDFLRERLLGWIQDQGGWDGLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAG-ITWGKVVSLYSAAAGLAVD 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PTSSEQIMKTGALLLQGFIQDRAGRMG---GEAPELALDPVPQDASTKKLSECLKRIGDEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mutation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PS01080;
PS01258;
PS01259;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Anti-oncogene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       59
98
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11
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NMELQRMIAAVDTDSPREVFFRVAADMFSDGNFNWGRVVALFYFASKLVLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BH1;
BH2;
BH3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       73
118
165
192
  license agreement (See http://www.isb-sib.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21184 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13.0%;
28.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Transmembrane; Alternative splicing;
                                                                                                                                                                                                                                                                                                                                                                       and expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 143.5; DB 1
Pred. No. 6.4e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HOMODIMERIZATION).
/FTId=VAR_013576.
6C0CDB0A7DEE4994 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             G -> R (IN T-CELL ACUTE LYMPHOBLASTIC LEUKEMIA; LOSS OF HETERODIMERIZATION WITH BCL-2 OR BCL-X(L)).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  вн3
вн1
вн2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Craniata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /FTId=VAR_013575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /FTId=VAR_007809.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -> V (IN BURKITT LYMPHOMA; LOSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (IN PLASMACYTOMA).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       update)
                                        There are no restrictions ng as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AA
                                                                                                                                                                                                                                                                                                                                                                            of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 1;
                                                                                                                                                                                                                                                                                                                                                                            two
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 176
                                                                                                                                                                                                                                                                                                                                                                          Xenopus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                        and
                                                                                 EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                          bcl-2-like
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              192;
                                                                                                        a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13;
                        tor
  .ch/announce/
                                                                                                                                                                                                                                             AND
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                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 15
BCLX_CHICK
                                                                                                                                                                                                                                                                                                                                                                                                                                                 멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 28
                                                                                                                                                                                                                                                                                                                                          BCLX_CHICK STANDARD; PRT; 2

Q07816; Q98908;

01-FEB-1995 (Rel. 31, Created)

01-NOV-1997 (Rel. 35, Last sequence up

15-JUN-2002 (Rel. 41, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL;
                   -
                                                                          SEQUENCE FROM N.A. (LONG FORM).
STRAIN-Hubbard White Mountain; TISSUE-Testis;
MEDLINE-97264485; PubMed-9110311;
Vilagrasa X., Mezquita C., Mezquita J.;
                                                                                                                                                                         "bcl-x, a bcl-2-related gene that functions as of apoptotic cell death."; Cell 74:597-608(1993).
                                                                                                                                                                                                           Boise L.H., Gonzalez-Garcia M., Postema C. Turka L.A., Mao X., Nunez G., Thompson C.
                                                                                                                                                                                                                                SEQUENCE FROM N.A. (SHORT FORM).
MEDLINE=93364977; PubMed=8358789;
                                                                                                                                                                                                                                                                                                  Gallus gallus (Chicken)
Eukaryota; Metazoa; Cho
                                                                                                                                                                                                                                                                                                                        Apoptosis regulator Bcl-X. BCL2L1 OR BCLX OR BCL-X.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SMART; SM00337; BCL; SMART; SM00265; BH4; TIGRFAMS; TIGR00865;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          or
                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROSITE; PS01258; BH2; 1.
PROSITE; PS50062; BCL2_FAMILY; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Apoptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          send
     SUBCELLULAR LOCATION: MITOCHONDRIAL MEME
ENVELOPE (BY SIMILARITY).
ALTERNATIVE PRODUCTS: 2 ISOFORMS: A LONG
SHORT FORM; ARE PRODUCED BY ALTERNATIVE
                                               FUNCTION: DOMINANT REGULATOR OF APOPTOTIC CELL DEATH FORM DISPLAYS CELL DEATH REPRESSOR ACTIVITY, WHEREAS ISOFORM PROMOTES APOPTOSIS (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                              AFFSFGRALCVESANKEMTDLLPRIVQWMVNYLEHTLQPWMQENGGW
                                                                                     Reprod. Dev. 47:26-29(1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGITWGKVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EVLQALLEATEEFELRYQRAFSDLTSQLHI----TQDTAQQSFQQVMGELFRDGTNWGRIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PF02180; BH4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        X82461; CAA57844.1; Q07817; 1MAZ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PF00452; Bcl-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PS01080;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IPR004725;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IPR003093;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IPR00071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 204 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                         Aves;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           вн1;
                                                                                                                                                                                                                                                                                        Neognathae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        167
                                                                                                                                                                                                                                                                                                  Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bcl2_BH4.
Bcl2_reg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 23379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       bcl-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BCL2_family.
                                                                                                                                                                                                                                                                                                                                                         Last sequence update)
                                                                                                          of bcl-2 and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 138.5; DB 1;
Pred. No. 1.9e-05;
2; Mismatches 54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL
                                                                                                                                                                                                                                                                                       Craniata; Vertebrata; Euteleostomi;
; Galliformes; Phasianidae; Phasiani
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3BFC6BE6DDA4CA03 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                         229
                                                                                                         bcl-x during
                                                                                                                                                                                                                                                                                                                                             update)
                                                                                                                                                                                                                     C.E.,
                   LONG
                                         MEMBRANES
                                                                                                                                                                                                             .в.;
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        SPLICI
                                                                                                                                                                                                                      Ding L.,
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                   (SHOWN HERE) AND
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                                         PERINUCLEAR
                                                                                                                                                                                                                       Lindsten
                                                               THE
                                                                                                                                                                                                                                                                                        Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           204;
                                                                          THE
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                                                              SHORT
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SPECIFICITY: HIGHEST EXPRESSION IN ORGANS

WITH LYMPHOID

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIGRPAMS; TIGR00865; b
PROSITE; PS50062; BC12
PROSITE; PS01080; BH1;
PROSITE; PS01258; BH2;
PROSITE; PS01259; BH3;
PROSITE; PS01260; BH4
PROSITE; PS01260; BH4
                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SMART; SM00337; BCL; SMART; SM00265; BH4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
-!- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pfam; PF00452; Bcl-2; 1. Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR002475; BCL2_family.
InterPro; IPR000712; Bcl2_BH.
InterPro; IPR003093; Bcl2_BH4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; Z23110; CAA80657.1; -. EMBL; U26645; AAB07677.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Apoptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PIR; A47537; A47537.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HSSP; P53563;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <del>-</del>
                                                                                                              162 LATWLRRRGGW 172
                                                                                                                                                114 TAYQSFEQVVNELFHDGVNWGRIVAFFSFGGALCVESVDKEMRVLVGRIVSWMTTYLTDH 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR004725; Bcl2_reg.
                                                                           174 LDPWIQENGGW
                                                                                                                                                                                   102 VVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKT 161
                                                                                                                                                                                                                      57 AGHVVNGATVHRSSLEVHEIVRASDVRQALRDAGDEFELRYRRAFSDLTSQLHI---TPG 113
                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                              23 TDKELVAQAKALGREYVHARLLRAGLSWSAPE-----
                                                                                                                                                                                                                                                                                              4 SNRELVI------DFVSYKLSQRGHCWSELEEEDENRTDTAAEAEMDSVLNGSPSWHPP 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEVELOPMENT.

DOMAIN: BH4 DOMAIN SEEMS
FUNCTION. INTACT BH1 AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APOPTOTIC ACTIVITY
                                                                                                                                                                                                                                                                   GG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  229 AA;
                                                                           184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S5; bcl-2; 1.
BCL2_FAMILY; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    25733 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 bcl-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEEMS TO BE INVOLVED IN THE ANTI-APOPTOTIC H1 AND BH2 DOMAINS ARE REQUIRED FOR ANTI-(BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alternative splicing
                                                                                                                                                                                                                                                             -RLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEP 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BH2.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                               ERFVDLYGNNAAAELRKGQETFNKWLLTGATVAGVLLLGSL
LSRK -> VRTALP (IN SHORT ISOFORM).
: A97D3A4D04C0E9DA CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                    Usage
                                                                                                                                                                                                                                                                                                                                                                                                            Length 229;
                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               and for
                                                                                                                                                                                                                                                                                                                                                                         51;
                                                                                                                                                                                                                                                                                                                                                                     Gaps
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Minimum Maximum

DB BG

seq length: 0 seq length: 2000000000

Total number of hits satisfying chosen parameters:

283224 seqs, 96134422 residues

Scoring table:

BLOSUM62

Gapop 10.0 ,

Gapext 0

Title: Perfect score:

·US-09-682-667-6 1100

1 MEVLRRSSVFAAEIMDAFDR..

Run on:

OM protein - protein search, using sw

model

Post-processing: Minimum Match Maximum Match

Listing

Match 0% Match 100% first 45 summaries

PIR_73:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
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1534.145 Million cell updates/sec
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bc1-x transmembran
bc1-x long - mouse
BCL-x protein - ra
bc1-2-associated p
BCL-X-long - rat
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                        BCL2 homolog MCL1
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gene bcl-2 protein
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Bak protein - huma
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B-cell lymphoma 2
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                                                                  2-associated p
2 protein - hu
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                                  B-cell lymphoma 2 protein - Chinese hamster
C:Species: Cricetulus griseus (Chinese hamster)
C:Species: 17-Nov-2000 #sequence_revision 17-Nov-2000 #text_c
C:Accession: JC7383
R:Tomicic, M.T.; Christmann, M.; Kaina, B.
Biochem. Biophys. Res. Commun. 275, 899-903, 2000
A:Title: Cloning and functional analysis of cDNA encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C;Accession: I53744
R;Sato, T; Irie, S; Krajewski, S; Reed, J.C.
Gene 140, 291-292, 1994
A;Title: Cloning and sequencing of a cDNA encoding the rat Bcl-2
A;Reference number: I53744; MUID:94193015; PMID:8144041
A;Accession: I53744
A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                     RESULT
JC7383
                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Molecule type: mRNA
A;Residues: 1-236 <RES>
A;Cross-references: GB:L14680; NID:g408946; PIDN:AAA53662.1; PID:g408947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C;Species: Rattus norvegicus (Norway rat)
C;Date: 29-May-1998 #sequence_revision 29
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C;Superfamily: bcl transforming protein
A;Contents: Ovary
A;Accession: JC7383
                          A; Reference number: JC7383
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91.5
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52; Conserv
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S76557
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Result

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Score

Match

Length

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SUMMARIES

Query

158 157

103744 JC73744 JC7432 JE0203 TVM203 TVH021 837332 A37332 A37332 TVH041 S244390 TVMSB1 TVMSB1 TVMSB1 149056 S51761 S51761 S647538

2254 2254 227 227 227

TVHUB1
A47538
A47537
D47538
S58873

153295 \$58875 \$47476 138921 158194

153.5 153.5 150.5 150.5 150.5 150.5 149.5 149.5 148.5 146.5 146.5 146.5 146.5 146.5 146.5

105 97.5 95. 120 110.5

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RESULT 4
JE0203
%apoptosis regulator bcl-x isoform
N;Alternate names: h-bcl-xbeta
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A;Title: Expression of members of the bc1-2 gene family in onstitutive bc1-2 and bc1-xlong messenger ribonucleic acid A;Reference number: 153295; MUID:95129487; PMID:7828536
A;Accession: 167432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: mRNA
A; Residues: 1-236 <TOM>
A; Cross-references: GB: AJ271720
C; Comment: This protein has ant
C; Genetics:
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C:Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change 16-Jul-1999
C:Accession: 167432
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C;Superfamily: bcl
C;Keywords: B-cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Cross-references: EMBL:U34964; NID:g1004378; PIDN:AAA77687.1; PID:g1004379 C;Superfamily: bcl transforming protein
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A; Residues: 1-236 < RES>
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Best Local Similarity
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Best Local :
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                                                                                                       YLNRHLHTWIQDNGGWDAFVELYGPSMRPLFDFSWQSLKTLLSLALVGACITLGAYL
                                                                                                                                              FVRKTLATWLRRRGGWTDVLKCV-VSTKPGFRSHW
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                                                                                                                                                                                                                     LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGE 156
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7; Mismatches 83
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A; Title: Isolation and characterization of
A; Reference number: A37332; MUID:92375724;
A; Accession: E37332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           transforming protein bcl-2-alpha - mouse C;Species: Mus musculus (house mouse) C;Date: 31-Dec-1988 #sequence_revision 31-Dec-1988 #text_change 18-Jun-1999 C;Accession: A25960; E37332 R;Negrini, M.; Silini, E.; Kozak, C.; Tsujimoto, Y.; Croce, C.M.
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                                                                                                                                                            A;Introns: 192/3
C;Superfamily: bcl trans
C;Keywords: alternative
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A;Title: Nolecular analysis of mbcl-2: structure and expression of A;Reference number: A90893; MUID:87187643; PMID:3032455
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    R;Ban, J.; Eckhart, L.; Weninger, W.; Mildner, M.; Tschachler, Biochem. Biophys. Res. Commun. 248, 147-152, 1998
A;Title: Identification of a human cDNA encoding a novel bcl-x A;Reference number: JE0203; MUID:98340865; PMID:9675101
A;Accession: JE0203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C;Species: Homo sapiens (man)
C;Date: 21-Aug-1998 #sequence_revision 21-Aug-1998 #text_change 16-Jul-1999
C;Accession: JE0203
                                                                                                                                                                                                                                                                                                                                                                                                 A;Cross-references: GB:L31532; GB:M16506; NID:g468336; PIDN:AAA37282.1; R;Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: DNA
A; Residues: 1-236 < NEG>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Reference number: A; Accession: A25960
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                                                                                                                                                                                                                                                            A; Molecule type: DNA
A; Residues: 1-33,'E',34-220,'AL',223-236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Gene: bcl-x
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Cross-references: GB:U72398; NID:g1622940; PIDN:AAB17354.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Molecule type: mRNA
A; Residues: 1-227 <BAN>
                                                                                                                                                                                                                        A;Gene: BCL2
                                                                                                                                                                                                                                                                                               A; Status: preliminary; nucleic acid sequence not
                                                                               Matches
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                                       28 VAQAKALG-----
                                                                                                 Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            23 TDKELVAQAKALGREYVHARLLRAGLSWS-----APERA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4
MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDAGDADAAPLGAAPTPGIFSFQPESNPMPA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LNDHLEPWIQENGGWVRTKPLVCPFSLASGQRS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VRKTLATWLRRRGGW--TDVLKCVVSTKPGFRS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----SPAPGGR----
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEF 157
                                                                               l Similarity
50; Conser
                                                                                                                                                        bcl transforming protein
ternative splicing; mitocl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20 bcl transforming protein
                                                                             Conservative
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23.5%;
                                       ·REYVHARLLRAGLSW~----SAPERASPAPG----
                                                                                             14.3%;
22.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----LAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPL 97
                                                                               37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29; Mismatches
                                                                           Score 157.5;
Pred. No. 6e-0
37; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 158.5;
Pred. No. 4.7
                                                                                                                                                          mitochondrion; transforming
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .5;
.4.7e-07;
.77;
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                                                                                                 6e-07;
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                                                                                                                  DB 1;
                                                                                                                                                                                                                                                                                                   shown;
                                                                               79;
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                                                                                                                                                      protein;
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                                                                               57;
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                                       61
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R:Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y.
Nucleic Acids Res. 20, 4187-4192, 1992
A:Title: Isolation and characterization of A:Reference number: A37332; MUID:92375724;
A:Accession: A37332
                                                                                                                                                                                                                                                                                   transforming protein (bcl-2-alpha) - chicken (;Speciles: Gallus gallus (chicken) C;Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change C;Accession: A37332; S35453 R;Eguchi, Y; Ewert, D.L.; Tsujimoto, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Molecule type: DNA
A; Residues: 1-216 <EGU>
A; Cross-references: EMBL: D11381;
C; Superfamily: bcl transforming
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 transforming protein (bcl-2-beta) - chicken
C;Species: Gallus gallus (chicken)
C;Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change 24-Apr-1998
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                                                       A; Introns: 189/3
C; Superfamily: b
C; Keywords: mito
                                                                                                             A;Cross-references: EMBL:D11381
C;Genetics:
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A; Title: Isolation and characterization of the chicken bcl-2
A; Reference number: A37332; MUID:92375724; PMID:1508712
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A; Residues: 1-233 <EGU>
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                                                                                                                                                                                        A;Status: nucleic acid sequence
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                                               Superfamily: DC1 Transion; Keywords: mitochondrion;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;Accession: B37332; S35452
;Eguchi, Y.; Ewert, D.L.; Tsujimoto,
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Best Local Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                193 CASLSST----GGWLV 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 176 LKCVVSTKPGFRSHWLV 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    77
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17 KYIHYKLSQRGYDWAAGEDRPPVPPAPAPAAAPAAVAAAGASSHHRPEPPGSAAASEVPP 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             37 EYVHARLLRAGLSWSA-----PERASPAPGGRLAEVCT------
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIATWMTEYLNRHLHNWIQDNGGWVRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDV 175
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VHREMAARTSPLRPLVATAGPALSPVPPCVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     l Similarity
42; Conserv
                                                   bcl transforming protein
tochondrion; transforming
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL:D11381; EMBL:D11382
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14.2%;
21.3%;
14.1%;
20.6%;
                                                                                                                                                                                          not shown
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Pred. No. 7.5e-07
Score
Pred.
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No. :
                                                       protein; transmembrane protein
                                                                                                                                                                                                                              the chicken bcl-2
PMID:1508712
 ; DB 2;
1e-06;
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                                       C; Genetics
A; Cross-references:
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TVHUA1

transforming protein bcl-2, splice form alpua

C;Species: Homo sapiens (man)

C;Date: 31-Dec-1988 #sequence_revision 07-Jun-1996 #text_change 15-0

C;Date: 31-Dec-1988 #sequence_revision 07-Jun-1996 #text_change 15-0

C;Accession: C37332; A29409; S02452; A24428; A27622; B27622

R;Eguchi, Y; Ewert, D.L; Tsujimoto, Y.

Nucleic Acids Res. 20, 4187-4192, 1992

A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Title: Isolation and characterization and c
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TVHUA1
                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: mRNA
A; Residues: 1-58, 'T',60-116, 'R',118-239 <CLE>
A; Residues: 1-58, 'T',60-116, 'R',118-239 <CLE>
A; Cross-references: GB:M14745; NID:g179370; PIDN:AAA35591.1; PID:g179371
A; Cross-references: GB:M14745; NID:g179370; PIDN:AAA35591.1; PID:g179371
A; Title: Zorn, S.; Jensen, J.P.; Coupland, R.W.; Ko, H.S.; Wright, J.J.; Bakhshi, A; Title: Consequences of the t(14,18) chromosomal translocation in follicular lymphology.
                                                                      A; Molecule type: DNA
A; Residues: 1-6, 'S', 8-58, 'T', 60-128, 'C', 130-239 <HUA2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R;Cleary, M.L.; Smith, S.D.; Sklar, J.
Cell 47, 19-28, 1986
A;Title: Cloning and structural analysis of cDNAs for bcl-2
A;Reference number: A24428; MUID:87002488; PMID:2875799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Reference number: S02452;
A; Accession: S02452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Title: Alternative promoters and exons, sa; Reference number: S02452; MUID:88196071;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Note: this sequence has been corrected in reference A37332 R;Seto, M.; Jaeger, U.; Hockett, R.D.; Graninger, W.; Bennet EMBO J. 7, 123-131, 1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Molecule type: mRNA
A; Residues: 1-95, 'A', 97-109, 'G', 111-236, 'S', 238-239 <TSU>
A; Cross-references: GB:M13994; NID:9179366; PIDN:AAA51813
                                                A; Note:
                                                                                                                                                                           A; Accession:
                                                                                                                                                                                                                   A; Molecule type: mRNA
A; Residues: 1-58, 'T', 60-239 <HUA>
                                                                                                                                                                                                                                                                                                      A; Accession: A27622
                                                                                                                                                                                                                                                                                                                                         A; Reference number: A27622; MUID: 88217344; PMID: 3285301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Residues:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: DNA
A; Residues: 1-239 <EGU>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Status: nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Accession: A24428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                           the sequence was
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VELYGNSMRPLFDFSWISLKTILSLVLVGACITLGAYL 230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIATWMTEYLNRHLHNWIQDNGGWDAF 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AEGLRPAPPGVHLALRQAGDEFSRRYQRDFAQMSGQLHLTPFTAH----GRFVAVVEELF 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KYIHYKLSQRGYDWAAGEDRPPVPPAPAPAAAPAAVAAAGASSHHRPEPPGSAAASEVPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EYVHARLLRAGLSWSA----PERASPAPGGRLAEVCT----
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1-239 <SET>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 acid sequence not shown;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hockett, R.D.; Graninger, W.; Bennett,
    determined from the expression of BCL2 for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 36;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      somatic mutation and PMID:2834197
ne germline gene following t(14:18)
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GDB: BCL2

GDB:119031;

Constitutive

expression

chromosomal translocat

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transforming protein bcl-2-beta - mouse
C;Speciles: Mus musculus (house mouse)
C;Date: 31-Dec-1988 #sequence_revision 31-Dec-1988 #text_change 18-Jun-1999
C;Accession: B25960
R;Negrini, M.; Silini, E.; Kozak, C.; Tsujimoto, Y.; Croce, C.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 9
S24390
                                                                                     RESULT
TVMSB1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Title: Molecular cloning and DNA sequence analysis of A;Reference number: S24390; MUID:92379084; PMID:1511008 A;Accession: S24390
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            transforming protein (Bcl-2) homolog - chicken
C:Species: Gallus gallus (chicken)
C:Date: 13-Jan-1995 #sequence_revision 13-Jan-1995 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: mRNA
A; Residues: 1-232 <CAZ>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R:Cazals-Hatem, D.L.; Louie, D.C.; Tanaka, Biochim. Biophys. Acta 1132, 109-113, 1992
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Map position: 18q21.3-18q21.3 C; Function:
                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
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Best Local
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                                                                                                                                                        LYGNSMRPLFDFSWISLKTILSLVLVGACITLGAYL 229
                                                                                                                                                                                                                                                                                       LRGCAAPPGVHLALRQAGDEFSRRYQRDFAQMSGQLHL---TPFTATGRFVAVVEELFRD
                                                                                                                                                                                                                                                    GITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLK
                                                                                                                                                                                                                                                                                                                                                        KYIHYKLSQRGYDWAAGEDRPPVPPAPAPAAAPAAVAAAGASSHHRPSPPARLLLVRCPR
                                                                                                                                                                                       CV-VSTKPGFRSHW--
                                                                                                                                                                                                                       GVNWVRIVAFFEFGGVMCVESVNREMSPLVDNIATWMTEYLNRHLHNWIQDNGGWDAFVE
                                                                                                                                                                                                                                                                                                                                                                                         EYVHARLLRAGLSWSA-----PERASPAPGGRLAEVCT-----
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APGAAAGPALSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTAR----GREAT 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA
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                                                                                                                                                                                                                                                                                                                       -VLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSA 117
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21.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                         13.8%; Score 151.5;
20.4%; Pred. No. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             transmembrane protein
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                                                                                                                                                                                                                                                                                                                                                                                                                            36;
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c:,
                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. 2.166; Mismatches
                                                                                                                                                                                     -LVATLCSFGRFL 202
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Pred. No. 1.
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Υ.;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Gene: BCL2
C;Superfamily: bcl trans
C;Keywords: alternative
                                                                                                                                                                                                                                                                                                                                                                                A;Status: preliminary; translated
A;Molecule type: mRNA
A;Residues: 1-214 <RES>
                                                                                                                                                                                                                                                                                                                                                                                                                                           R:Fang, W.; Rivard, J.J.; Mueller, D.L.; Behrens, T.W. J. Immunol. 153, 4388-4398, 1994
A;Title: Cloning and molecular characterization of mouse A;Reference number: 149055; MUID:95052604; PMID:7963517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bcl-x transmembrane deleted - mouse
C;Species: Mus musculus (house mouse)
C;Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change=16-Jul-1999
C;Accession: I49057
                                                                                                                                                                                                                                                                                                                                                 C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                A; Cross-references:
                                                                                                                                                                                                                                                                                                                                                                                                                              A; Reference number: A; Accession: I49057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DЬ
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A; Residues: 1-199 < NEG>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cell 49, 455-463, 1987
A;Title: Molecular analysis
A;Reference number: A90893;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Cross-references: GB:M16506; NID:g468335;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Accession: B25960
                                                                                                                                                                                                                                                                       Best
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28 VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local
LNDHLEPWIQENGGW
                           VRKTLATWLRRRGGW 172
                                                                                                                                                                                   SNRELVV------DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEAERETPSAINGNPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YLNRHLHTWIQDNGGW--VGACLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VHREMAARTSPLRPLVATAGPALSPVPPCVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120
                                                           -TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATY
                                                                                          QSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEF 157
                                                                                                                         WHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI--
                                                                                                                                                     ----SPAPGGR------LAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FVRKTLATWLRRRGGWTDVLKCVV 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGE 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ----GRLAEVCTVLLRLGDELEQIRPSVYRNVAR-----
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                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -GREATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTE
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                                                                                                                                                                                                                                                                                                                transforming protein
                                                                                                                                                                                                                                                                                                                                                              EMBL:U10102; NID:g506649; PIDN:AAA82174.1;
                                                                                                                                                                                                                                                                  13.7%;
22.1%;
188
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                                                                                                                                                                                                                                                     29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       34;
                                                                                                                                                                                                                                                                  Score 150.5;
Pred. No. 2.
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RESULT 12
149056
bc1-x long - mouse
C;Species: Mus musculus (house mouse)
C;Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 16-Jul-1999
C;Accession: 149056; S52866
R;Fang, W; Raivard, J.J.; Mueller, D.L.; Behrens, T.W.
J. Immunol. 153, 4388-4398, 1994
A;Title: Cloning and molecular characterization of mouse bc1-x in B and T lymphc
A;Reference number: 149055; MUID:95052604; PMID:7963517
A;Accession: 149056
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-33 (RES>
A;Cross-references: EMBL:U10101; NID:g506647; PIDN:AAA82173.1; PID:g506648
R;Kamesaki, H.; Michaud, G.Y.; Takatsu, K.; Okuma, M.
submitted to the EMBL Data Library, November 1994
A;Description: IL-5 inhibits anti-IgM-induced apoptosis in an immature B cell li
A;Reference number: $52866
submitted to the EMBL Data Library, November 1994
A; Reference number: S51761
A; Accession: S51761
A; Accession: S51761
A; Accession: S51761
A; Residues: 1-233 <MIC>
A; Residues: 1-233 <MIC>
A; Residues: 1-233 <MIC>
A; Residues: 1-253 <MIC>
A; Experimental source: embryonic; brain
A; Accession: S51762
A; Status: preliminary
A; Molecule type: DNA
A; Residues: 1-125,189-233 <MIZ>
A; Cross-references: EMBL:X82537; NID:g607176; PIDN:CAA57887.1; PID
A; Experimental source: embryonic; brain
A; Note: smaller form due to splicing
C; Genetics:
A; Introns: 125/3
C; Superfamily: bcl transforming protein
                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 13
$51761
BCL-X protein - rat
C:Species: Rattus norvegicus (Norway ra
C;Date: 07-Way-1995 #sequence_revision
C:Accession: $51762
R:Michaelidis, T.M.
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A; Residues: 1-233 <KAM>
A; Cross-references: EMBI
C; Superfamily: bcl trans
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A; Status: prelimina
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Superfamily: bcl transforming;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       188
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22.1%;
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Pred. No. 2.0
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on 01-Sep-1995
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                                                                                                                     PID:g607178
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RESULT 15
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Cross-references: GDB:228082; OMIM:600040 A;Map position: 19q13.3-19q13.4 C;Superfamily: bol transforming protein C;Keywords: alternative splicing; blocked and C;Keywords: alternative splicing; blocked and control of the control 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; uross-references: GB:L22474; NID:g388167; PIDN:AAA03620.1; A; Note: the amino end of the mature protein is blocked C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C;Species: Homo sapiens (man)
C;Date: 03-May-1994 #sequence_revision 03-May-1994 #text_change 17-Nov-2000
C;Accession: B47538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
B47538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
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A; Residues: 1-218 <OLT>
A; Cross-references: GB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Title: Bcl-2 heterodimerizes in vivo with a conserved A; Reference number: A47538; MUID:93364978; PMID:8358790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 bcl-2-associated protein x, beta splice form - human N; Alternate names: BAX; programmed cell death membrane C; Species: Homo sapiens (man)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Gene: GDB: BAX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cell 74, 609-619, 1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R;Oltvai, Z.N.; Milliman, C.L.; Korsmeyer, S.J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Accession: B47538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                      22 PTDKELVAQAKALGRE-YVHARLLRAGLSWSAPERA-SPAP-GGRLAEVCTVLLRLGDEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98
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                                                                                                                                                                                                                                                                                                                                                                                 13 PTSSEQIMKTGALLLQGFIQDRAGRMG--GEAPELALDPVPQDASTKKLSECLKRIGDEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23 TDKELVAQAKALGREYVHARLLRAGLSWS------APERA--
                                                                                                                                                                                     CVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLK 177
                                                                                                                                                                                                                                                        DS----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LNDHLEPWIQENGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SNQELVV------DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEPERETPSAINGNPS
                                                                                                                                                                                                                                                                                                                     EQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAG-ITWGKVVSLYSAAAGLAVD 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VRKTLATWLRRRGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----SPAPGGR-------LAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPL
                                                                                                                            ALCTKVPELIRTIMGWTLDFLRERLLGWIQDQGGWVRLLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATY 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
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                                                                                                                                                                                                                                                        NMELQRMIAAVDTDSPREVFFRVAADMFSDGNFNWGRVVALFYFASKLVLK 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13.5%; 28.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13.6%;
22.1%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 148.5;
Pred. No. 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 blocked amino end; cytosol; heterodimer; homodimer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 149.5;
Pred. No. 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3.7e-06;
72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .2e-06;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13;
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R;Tilly, J.L.; Tilly, K.I.; Kenton, M.L.; Johnson, A.L. Endocrinology 136, 232-241, 1995
A;Title: Expression of members of the bcl-2 gene family in onstitutive bcl-2 and bcl-xlong messenger ribonucleic acid A;Reference number: 153295; MUID:95129487; PMID:7828536

the immature levels.

rat

ovary:

eq

C;Species: Rattus norvegicus (Norway rat)
C;Date: 26-Jul-1996 #sequence_revision 26-Jul-1996
C;Accession: I67431

#text_change

.16-Jul-1999

BCL-X-Long - rat C; Species: Rattu

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A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-233 <RES>
A;Cross-references: EMBL:U34963; NID:g1004376; PIDN:AAA77686.1; PID:g1004377
C;Superfamily: bcl transforming protein
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Search completed: April 29, 2003, 11:26:36 Job time: 14.3473 secs
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                                                                                                        174 LNDHLEPWIQENGGWDTFVDLYGNNTAPESRKGQERFNRWFLTGMTVAGVVLLGSLF 230
                                                                                                                                                          158 VRKTLATWLRRRGGW-TDVLKCVVSTKPGFR-----SHWLVATLCSFGRFLKAAFF 207
                                                                                                                                                                                                         115 -TPGTVYQSFEQVVNELFRDGVNWGRIVASSSFGGALCVESVDKEMQVLVSRIASWMATY 173
                                                                                                                                                                                                                                          98 QSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEF 157 : | ; | ; | ; | ; ; ; ; ;
                                                                                                                                                                                                                                                                                                              57 WHLADSPAVNGATGHSSSLDAREVLPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI-- 114
                                                                                                                                                                                                                                                                                                                                               57 -----SPAPGGR-------LAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPL 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                     4 SNRELVV------DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEPERETPSAINGNPS 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62;
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Title:
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Maximum Match 100%
Listing first 45 summaries
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Maximum DB seq length: 2000000000
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Gapop 10.0 , Gapext 0.5
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1: /SIDS2/gcgda+=/
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1: \SID$2\gcqdata\geneseq\geneseq-embl\Aa198.DAT:*
2: \SID$2\gcqdata\geneseq\geneseq-embl\Aa198.DAT:*
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21: \SID$2\gcqdata\geneseq\geneseq-embl\Aa199.DAT:*
22: \SID$2\gcqdata\geneseq\geneseq-embl\Aa199.DAT:*
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27: \SID$2\gcqdata\geneseq\geneseq-embl\Aa2000.DAT:*
28: \SID$2\gcqdata\geneseq\geneseq-embl\Aa2000.DAT:*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

1 2 3 4 4 6 6 7 7 9 9	Result
1100 1076 1055 852.5 821.5 716 660 240.5 230 159.5	Score
100.0 97.8 95.9 77.5 74.7 65.1 60.0 21.9 20.9 14.5	Query Match Length DB
213 213 213 170 170 176 134 846 247	ength I
20 20 20 20 20 20 20 21 22 22 22 22 22	í
AAY14155 AAY14153 AAB41444 AAY14156 AAY14156 AAB58949 AAB5865 ABB64401 ABB63760 AAB63760	ID
Human Bok protein se Rat Bok protein se Human ORFX ORF1208 Human Dok protein se Breast and ovarian Human Bcl-2-like p Drosophila melanog Drosophila melanog Human BCL-2 protei	Description

ALIGNMENTS

RESULT 1

		PA YY			X P			X X					XX		XX		AAY14155 ID AAY	
WPI; 1999-327356/27. N-PSDB; AAX61105.	Hsu SY, Hsueh AJW;	(STRD) UNIV LELAND STANFORD JUNIOR.	07-NOV-1997; 97US-0064943.	04-NOV-1998; 98WO-US23523.	20-MAY-1999.	WO9924453-A1.	Homo sapiens.	proliferative disorder; human. ·	ovarian carcinoma; glandular epithelial carcinoma; cancer; therapy;	reproductive tissue; uterine carcinoma; testicular carcinoma; cervix;	pro-apoptotic protein; apoptosis inducer; hyperproliferation disease;	Bok protein; Bcl-2-related ovarian killer; BH3i variant; endometriosis;	Human Box protein sequence.	27-JUL-1999 (first entry)		AAY14155;	155 AAY14155 standard; Protein; 213 AA.	111

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RESULT 2
AAY14153
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Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and ovarian carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic Bcl-2 proteins. The Bok protein can be used to elucidate apoptosis mechanisms in reproductive and other tissues, and provide a means for manipulating apoptosis. The Bok protein and transgenic animal are also useful for identifying ligands or substrates. Modulation of the gene activity in vivo is useful for prophylaxis and therapy of, e.g. cancer and other proliferative disorders. Bok genes are also useful for identification of cell type based on expression. Identification of Bok as a new pro-apoptotic protein with wide tissue distribution and heterodimerisation properties
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This sequence is a mammalian Bok (Bcl-2-related ovarian killer) protein, of the invention. Coding sequences for Bok or BH3 variants of pro-apoptotic Bok-related protein can be introduced into cell populations to upregulate expression of the proteins in order to induce apoptosis in the cell population. This is useful for treatment of diseases where there is hyperproliferation of reproductive tissue, e.g. uterine, testicular
                                                                                                                                                                                                         pro-apoptotic protein; apopto reproductive tissue; uterine
                                                                                                                                                                                                          Bok protein; Bcl-2-related ovarian killer; BH3i variant; endometriosi pro-apoptotic protein; apoptosis inducer; hyperproliferation disease; reproductive tissue; uterine carcinoma; testicular carcinoma; cervix;
                07-NOV-1997;
                                              04-NOV-1998;
                                                                             20-MAY-1999
                                                                                                                                                                                             ovarian carcinoma;
                                                                                                                                                                                                                                                                            Rat
                                                                                                                                                                                                                                                                                                                                                                        AAY14153 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mammalian Bok (Bcl-2-related ovarian killer), a pro-apoptotic protein and its related gene \dot{}
                                                                                                              WO9924453-A1
                                                                                                                                              Rattus rattus
                                                                                                                                                                              proliferative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STKPGFRSHWLVATLCSFGRFLKAAFFLLLPER
                                                                                                                                                                                                                                                                                                                                                                                                                                                     STKPGFRSHWLVATLCSFGRFLKAAFFLLLPER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                              disorder;
                97US-0064943
                                              98WO-US23523
                                                                                                                                                                                           glandular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         of apoptosis mechanisms.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                           epithelial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 1100; DB 20;
Pred. No. 3.6e-112;
                                                                                                                                                                                                                                                                                                                                                                        ΑA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                     213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     213
                                                                                                                                                                                          testicular carcinoma; carcinoma; carcinoma; cancer; the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                          endometriosis;
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                                                                                                                                                                                                         cervix;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
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Matches
                                               Query Match
                                                                                                                                            protein can be used to elucidate apoptosis mechanisms in reproductive and other tissues, and provide a means for manipulating apoptosis. The Bok protein and transgenic animal are also useful for identifying ligands or substrates. Modulation of the gene activity in vivo is useful for prophylaxis and therapy of, e.g. cancer and other proliferative disorders. Bok genes are also useful for identification of cell type based on expression. Identification of Bok as a new pro-apoptotic protein with wide tissue distribution and heterodimerisation properties
                                                                                                                                                                                                                                                                                                         This sequence is a mammalian Bok (Bcl-2-related ovarian killer) protein, of the invention. Coding sequences for Bok or BH31 variants of pro-protein by the invention of the protein can be introduced into cell populations to upregulate expression of the proteins in order to induce apoptosis in the cell population. This is useful for treatment of diseases where there is hyperproliferation of reproductive tissue, e.g. uterine, testicular and ovarian carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic Bcl-2 proteins. The Bok
                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mammalian Bok (Bcl-2-related ovarian killer), a pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hsu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein
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                                                                                                                          facilitates elucidation of apoptosis mechanisms.
                            Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and its related gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                UNIV LELAND STANFORD JUNIOR
                            Similarity
                                                                                        213 AA;
        Conservative
                         97.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        English.
Score 1076; DB 40, pred. No. 1.5e-109;
        0
        Indels
                                             Length
      0;
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Gaps 0

밁 Qy

61

GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT 120

121 WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV WGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV 180

181

213

Ş Вþ δõ В QΥ

B

181

RESULT 3 AAB41444 AAB41444 standard; Protein; 213

Human ORFX ORF1208 polypeptide sequence (first entry) SEQ ID NO:2416

08-FEB-2001

vulnerary; antipsoriatic; antiparkinsonian; nootropic; neuroprotective; anticonvulsant; osteopathic; antiarthritic; immunosuppressant; cardiant immunostimulant; thrombolytic; coagulant; vasotropic; antidiabetic; hypotensive; dermatological; immunosuppressive; antiinflammatory; antiviral; antibacterial; antifungal; antirheumatic; antithyroid; antianaemic; gene therapy; cancer; proliferative disorder; hyperte neurodegenerative disorder; osteoarthritis; graft vs host disease; Human; open reading frame; ORFX; detection; cytostatic; diabetes mellitus; hypothyroidism; hepatotropic; hypertension; cardiant;

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                                                                                                                                                                                                                                                                                                                                                                   CC AAC74446 to AAC77606 encode the proteins given in AAB40237 to AAB43397, CC which represent the human ORFX open reading frames 1 to 3161. The ORFX CS sequences have activities such as: cytostatic; hepatotropic; vulnerary; CC antipsoriatic; antiparkinsonian; nootropic; neuroprotective; CC antipsoriatic; antiporvisant; antiarthritic; immunosuppressant; CC immunostimulant; cardiant; thrombolytic; coagulant; vasotropic; CC antidiabetic; hypotensive; dermatological; immunosuppressive; CC antiinflammatory; antibacterial; antiviral; antifungal; antirheumatic; CC antithyroid; and antianaemic. The sequences can be used for determining CC the presence of or predisposition to, or preventing or treating CC pathological conditions associated with an ORFX-associated disorder. The CC public acids can be used to express ORFX proteins in gene therapy CC vectors. The proteins and nucleic acids may be used to treat cancers, CC proliferative disorders, neurodegenerative disorders, osteoarthritis, CC proliferative disorders, neurodegenerative disorders, osteoarthritis, CC graft vs host disease, cardiovascular disease, diabetes mellitus, CC proliferation, hypothyroidism, cholesterol ester storage, systemic lupus CC erythematosus, severe combined immunodeficiency (SCID), AIDS, viral, CC proliferation, palastic anaemia, burns, wounds, bone and cartilage damage, CC cagulation; to inhibit thrombosis; and as a contraceptive.
                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31-MAR-1999;
02-APR-1999;
05-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cholesterol ester storage; systemic lupus erythematosus; infection; severe combined immunodeficiency; malaria; autoimmune disorder; asthma; allergy; aplastic anaemia; nocturnal haemoglobinuria; burn; wound; bone damage; cartilage damage; antiinflammatory disease; coagulation;
                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   useful for treating e.g. cancers, proliferative disordence neurodegenerative disorders and cardiovascular disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                30-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             31-MAR-2000;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               thrombosis; contraceptive.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (CURA-) CURAGEN CORP.
 181
                                                                                                                                                  61
                                                                                                                61
                                                                                                                                                                                                         1 MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP 60
                                                                                                                              GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT 120
STKPGFRSHWLVATLCSFGRFLKAAFFLLLPER
                                                     WGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV 180
                                 WGKVVSLYAVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
                                                                                                          GGRLAEVCAVLLRLGDELEMIRPSVYRNVARQLHISLQSEPVVTDAFLAVAGHIFSAGIT
                                                                                                                                                                                       MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nucleic acids and peptides derived from open reading
                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Page 1750-1751; 5507pp; English
                                                                                                                                                                                                                                                                                                                                           213
                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000WO-US08621.
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99US-0127636.
99US-0127728.
                                                                                                                                                                                                                                                                                                                                           AA;
                                                                                                                                                                                                                                                                                95.9<del>8</del>;
                                                                                                                                                                                                                                                              2;
                                                                                                                                                                                                                                                                              Score 1055;
Pred. No. 3
                                                                                                                                                                                                                                                                Mismatches
213
                                                                                                                                                                                                                                                                            ; DB 21;
3.1e-107;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      disorders,
                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                    213;
                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                     60
                                                                                                            120
                                                                                                                                                                                                                                                            0;
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Q Дb Qy

61

MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP

170;

Conservative

43;

Gaps 60 60

1;

GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP

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RESULT 4
ARX14156
AD ARX14156
AD ARX14156
AD ARX1416
AC ARX1
A
                                                                                                                                                                                                                CC protein and transgenic animal are apoptotic Bc1-2 protein and transgenic animal are also useful for identifying ligands or compression of the protein for manipulations that can be introduced into cell populations. This is useful for treatment of diseases where there can be protein and carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic Bc1-2 proteins. The Bok context issues, and provide a means for manipulating apoptosis. The Bok context issues, and provide a means for manipulating apoptosis. The Bok context issues, and provide a means for manipulating apoptosis. The Bok context issues, and transgenic animal are also useful for identifying ligands or consustrates. Modulation of the gene activity in vivo is useful for consustrates. Modulation of the gene activity in vivo is useful for based on expression. Identification of Bok as a new pro-apoptotic protein with wide tissue distribution and heterodimerisation properties
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             Matches
                                           Query Match
Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bok protein; Bcl-2-related ovarian killer; BH31 variant; endometriosis; pro-apoptotic protein; apoptosis inducer; hyperproliferation disease; reproductive tissue; uterine carcinoma; testicular carcinoma; cervix; ovarian carcinoma; glandular epithelial carcinoma; cancer; therapy;
                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This sequence is a mammalian Bok (Bcl-2-related ovarian killer)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 1999-327356/27
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20-MAY-1999
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                                                                                                                                                                                               facilitates elucidation of apoptosis mechanisms
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (STRD ) UNIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
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                                           Similarity
                                                                                                                                         170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LELAND
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                                                                                                                                         AA;
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                                        77.5%;
79.8%;
          0;
                                        Score 852.5;
Pred. No. 3.4
          ed. No. 3.4
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
3.4e-85;
0;
                                                                      Length 170;
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RESULT 5
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   Matches
                  Query Match
Best Local :
                                                                                                       protein can be used to elucidate apoptosis mechanisms in reproductive and other tissues, and provide a means for manipulating apoptosis. The Bok protein and transgenic animal are also useful for identifying ligands or substrates. Modulation of the gene activity in vivo is useful for prophylaxis and therapy of, e.g. cancer and other proliferative disorders. Bok genes are also useful for identification of cell type based on expression. Identification of Bok as a new pro-apoptotic protein with wide tissue distribution and heterodimerisation properties
                                                                                                                                                                                                                                       protein, of the invention. Coding sequences for Bok or BH31 variants of pro-apoptotic Bok-related protein can be introduced into cell populations to upregulate expression of the proteins in order to induce apoptosis in the cell population. This is useful for treatment of diseases where there is hyperproliferation of reproductive tissue, e.g. uterine, testicular and ovarian carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic Bok can be suppressed by co-expression with selective anti-apoptotic Bok can be suppressed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bok protein; Bcl-2-related ovarian killer; BH31 variant; endometriosis; pro-apoptotic protein; apoptosis inducer; hyperproliferation disease; reproductive tissue; uterine carcinoma; testicular carcinoma; cervix; ovarian carcinoma; glandular epithelial carcinoma; cancer; therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                             Mammalian Bok (Bcl-2-related protein and its related gene
                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                            This sequence is a mammalian Bok (Bcl-2-related ovarian killer)
                                                                                                                                                                                                                                                                                                                                                                                                              Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          04-NOV-1998;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Rat Bok protein sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAY14154 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (STRD ) UNIV LELAND
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               Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STKPGFRSHWLVATLCSFGRFLKAAFFLLLPER
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   166;
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                                                                                                                                                                                                                                                                                                                                                                                                             2;
                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAX61104.
                                                                                                                                                                                                                                                                                                                                                                                                             Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hsueh AJW;
                                                                 170
                                                                                                elucidation
   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANFORD JUNIOR
                74.78;
77.98;
                                                                                                of apoptosis mechanisms.
 0;
Score 821.5; DB 2
Pred. No. 8.5e-82;
0; Mismatches 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ovarian killer), a pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               213
                                20;
                              Length
                                170;
43;
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Gaps
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RESULT 6
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Sequences AAF21614 - AAF22031 represent DNA sequences encoding human proteins AAB58711 - AAB59128. The DNA and protein sequences are associated with breast and ovarian cancer. Included in the invention are sequences AAF22032 - AAF22040 and AAB59129 which are used in the isolation and characterisation of the DNA and protein sequences of the invention. The breast and ovarian cancer associated DNA, protein, agonist or antagonist sequences exhibit cytostatic; immunosuppressive; nootropic; neuroprotective; antiviral; antiallergic; hepatotropic; antidiabetic; antiinflammatory; antiucer; vulnerary; anticonvulsant; antibacterial; antiinflammatory; antiparasitic and cardiant activity. The polynucleotide and protein sequences are used in the diagnosis of cancer, particularly breast and ovarian cancer. The nucleic acid sequences,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nootropic; neurpprotective; antiviral; antiallergic; hepatotropic; antidiabetic; antinilammatory; antiulcer; vulnerary; anticonvulsant antibacterial; antifungal; antiparasitic; cardiant; immune disorder; Addison's disease; allergy; autoimmune haemolytic anaemia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             New human breast and ovarian cancer associated gene sequences and the polypeptides encoded by these genes, useful in the prevention, treatment and diagnosis of cancer, immune disorders, cardiovascular disorders and neurological diseases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 2000-611515/58
N-PSDB; AAF21852.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Breast and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200055173-A1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Page 1103; 1299pp; English.
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The invention provides nucleic acid molecules (NAMI) encoding 4 human Bcl-2-like polypeptides (PEPI). The NAMI and PEPI may be used in the prevention, diagnosis and treatment of diseases associated with inappropriate Bcl-2-like polypeptides expression. The NAMI may be used to produce the soluble Bcl-2-like polypeptides by standard recombinant methodolgy. The polypeptides may also be used as antigens in the production of antibodies against Bcl-2 and in assays to identify modulators of Bcl-2 expression and activity. The anti-Bcl-2 antibodies and antagonists may be used to down regulate expression and activity.
                                                                                                                                                                                                                                                                                  Claim 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bcl-2-like polypeptide; autoimmune disorder; allergy; immunomodulatory;
respiratory; cardiovascular; antiarthritic; immunostimulant; vaccine;
                                                                                                                                                                                                                                                                                                                                   Nucleic acids encoding human Bcl-2-like polypeptides, useful preventing, diagnosing and/or treating -
                                                                                                                                                                                                                                                                                                                                                                                                                      N-PSDB; AAH47021
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07-FEB-2000; 2000US-0180697
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (HUMA-) HUMAN GENOME SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31-JAN-2001; 2001WO-US03080
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ismatches 11;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                detecting the presence of Bcl-2 polyPs in samples (e.g. by enzyme linked immunosorbant assay (ELISA)). Disorders that may be prevented, diagnosed and/or treated by the above methods include, immunodeficiencies (e.g.
                                                                                      Disclosure; SEQ ID NO 19995;
                                                                                                                     New isolated nucleic acid genes from Drosophila and
                                                                                                                                                                                                                                  23-MAR-2000;
11-JUL-2000;
                                                                                                                                                                                                                                                                                                                                   Drosophila melanogaster.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             reactions, inflammations, respiratory diseases and cardiovascular disorders (a.full list of disorders is given in the specification). present sequence represents a human Bc1-2-like polypeptide.
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capable of detecting 1000 or more genes from Drosophila. The inventuation of the control of the capable of detecting 1000 or more genes from Drosophila. The inventuation is development of cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL16176-ABL30511), expressed DNA sequences (ABL01840-ABL16175) and the encoded proteins

The invention relates

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Best Local S
Matches 55
         The sequence data for this patent did not form specification, but was obtained in electronic f at ftp.wipo.int/pub/published_pct_sequences.
                                               insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL16176-ABL30511), expressed DNA sequences (ABL01840-ABL16175) and the encoded proteins (ABB01840-ABL16175).
                                                                                                capable of detecting 1000 or more genes from Drosophila. The invention useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryotes for the development of
                                                                                                                                                                                                                                                                                                                                 23-MAR-2000;
11-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The sequence data for this patent did not for specification, but was obtained in electroni at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                          WPI; 2001-656860/75
N-PSDB; ABL07863.
                                                                                                                                                                                                                                                                                                                                                                       23-MAR-2001;
                                                                                                                                        The invention relates to an isolated nucleic acid detection reagent
                                                                                                                                                                Disclosure; SEQ ID NO 18072;
                                                                                                                                                                                            New isolated nucleic a
genes from Drosophila
interactions -
                                                                                                                                                                                                                                                                                 Venter JC,
                                                                                                                                                                                                                                                                                                         (PEKE ) PE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                 Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Drosophila; dev pharmaceutical.
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                                                                                                                                                                                           interactions
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Pred. No. 2.
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                                                                                                                                                                                                   nt for detecting cell signalling
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                       format directly from
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                                                                                                                         The invention relates to methods of altering the polypeptide levels in a cell, using proteins selected from S-phase kinase associated proteins 1 and 2 (SKP1, SKP2), SKP2-like proteins (ZF) and CUL-1 (a member of the cullin/ CDC53 family of proteins). The method is useful for altering the level of P27, cyclin E, Max, Mad, C-Myc, MDM2, p53, Bax, Bad or Bc1-2 level of P27, cyclin E, Max, Mad, C-Myc, MDM2, p53, Bax, Bad or Bc1-2
                                                  Sequence
                                                                                     polypeptide in a cell. SKP2 and SKP2-like protein levels are useful for detecting tumours, and in monitoring tumor treatment in a mammal. Agent that modulate interactions between SKP and target proteins are useful fi
                                                                                                                                                                                                       Claim 5;
                                                                                                                                                                                                                                 proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bad;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S-phase kinase associated CUL-1; cullin; CDC53; p27;
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                                                                           treating
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                                                                                                                                                                                                                                                                                                                        Zhang
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             Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             25 KELVAQAKALGREYVHARLLRAGL--SWSAPERASPAPG----GRLAEVCTVLLRLGDEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bc1-2; tumour; cytostatic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGGLSVDCVRQGHPEYLPKLMESVSEVIEDELVPWINENGGW
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EQIRPSVYRNVARQL------HIPLQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSA 130
1 Similarity
47; Conser
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                                                                                                                                                                                                                                                                                    AAC84600
                                                                                                                                                                                                                                 altering 1, 2 and
                                                                            tumours.
                                                                                                                                                                                                      Page 104-108; 162pp; English.
                                                                                                                                                                                                                                                                                                                        Tsvetkov
                                                                                                                                                                                                                             polypeptide levels in a cell, diagltering levels of proteins such as , 2 and cullin/CDC53 proteins -
                                                  239 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         247
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Pred. No. 8.2e-17;
          Score 159.5;
Pred. No. 4.
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                                                                                                                                                                                                                                             cell, diagnosing and treating tumor, ns such as S-phase kinase associated
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             4.1e-09
                        DB
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                         22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SKP2-like protein; ZF; c-Myc; MDM2; p53; Bax;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           172
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                                                                                     proteins are useful for
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37 EYVHARLLRAGLSW---

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Conservative

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Best Local :
                                                                                                                                                                                                                                                                                                                                                                          The present invention describes a method for screening for an apoptosis inhibitor or an apoptosis promoter in which VDAC-liposome, an index substance which can pass VDAC and a sample are incubated and the change in the concentration of the index substance during the incubation is detected to judge the presence of apoptosis inhibition or apoptosis promotion. The apoptosis inhibitor or the apoptosis promoter can be used as a drug and a diagnostic agent for various diseases caused by apoptosis inhibition or apoptosis promotion. The present sequence represents the human Bcl-2 protein, which is an apoptosis inhibitor used, in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Screening of an apoptosis inhibitor or promoter which can be used drug and a diagnostic agent for various diseases caused by apoptos {\bf r}
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apoptosis promoter; diagnosis.
                                                                                                                                                                                                                                                                                                                         Sequence
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                                                                                         KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHTAASRDPVARTSPLQTPA 76
                                                                                                                                             EYVHARLLRAGLSW-----
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47; Conser
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-VLLRLGDELEQIRPSVYRNVARQLHI-PLQSEPVVTDAFLA 109
                                                                                                                                             -SAPERASPAPG----
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                                                                                                                                                                                              Score 159.5; DB 22;
Pred. No. 4.1e-09;
""smatches 73;
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RESULT 12
AAW01020
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                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The 80-6 mutant (AAW01020) of the bcl-2 oncogene product (AAW01018) lacks amino acids 80-86 of the native protein. This and other Bcl-2 mutants (see also AAW01019-21) were used in a two hybrid assay to examine the interactions between Bcl-2 and novel apoptosis-regulating proteins Nipl, Nip2 and Nip3 (AAW00997-99), 2 Motifs (AAW01003-04) on Bcl-2 were identified that are essential for interaction with the Nip proteins. These motifs show homology to motifs (AAW01005-06) identified on the adenovirus E1B 19K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Apoptosis-regulating protein; Bcl-2; oncogene; adenovirus E1B 19K protein; cell death; cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            interaction with the Nip proteins. These motifs show to motifs (AAW01005-06) identified on the adenovirus apoptosis-blocking protein (AAW01010).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Nucleic acids encoding apoptosis regulating proteins - useful diagnosing and treating immune disorders, malignancies, etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chinnadurai G;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           immune disorder; diagnosis;
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                                                                                                                                                                                                                                                                   37 EYVHARLLRAGLSW-----SAPERASPAPG-----
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AGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVL |: | : : : | | | : : | | | : : | | | : : | : | : : | | | : : | : | : : | : | : : | : | : : | : | : : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : 
                                                                                       APGSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTAR----GCFATVVEELFR 132
                                                                                                                                                                                                      {\tt KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGFFSSQPGHTPHPAASRDPVARTSPLQTPA}
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                                                                                                                                                                                                                                                                                                                         l Similarity
46; Conser
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                                                                                                                                          -VLLRLGDELEQIRPSVYRNVARQLHI-PLQSEPVVTDAFLAVAGHIFS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cell death; cancer;
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                                                                                                                                                                                                                                                                                                                      Score 158; DB 17;
Pred. No. 5.8e-09;
7; Mismatches 74;
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                                                                                                                                                                                                                                                                                                                                                                               Length 232;
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                                                                                                                                                                                                                    The present invention describes: (1) a method for regulating cell death, C comprising exposing an isolated cell to a polypeptide selected from Nipl, Nip3, Bip1A, Bip5 and Bip13; (2) a method for neutralising the activity of the adenovirus E1B 19 kD protein, the Bcl-2 protein or the BHR-1 protein, comprising exposing an isolated cell to a polypeptide as in (1); and (3) a method for detecting molecules that bind to at least one polypeptide as in (1), comprising lysing cells, caposing the lysate to the polypeptide and detecting my molecule-polypeptide aggregates. The methods are useful for providing proteins able to bind to other proteins known to regulate cell survival e.g. it is known that E1B 19K protein provides a survival function similar to the cellular proteoncogene bcl-2 gene product which is able to block apoptosis in haematopoietic B and T cells. The present sequence represents a human Bcl-2 mutant protein from the present invention.
                                                                                                                                                Query Match
Best Local :
                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Polypeptides that bind to anti-apoptotic proteins - useful for protecting against cell death induced by viral infection and modulate response to physical and chemical stimuli
                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Example 8; Column 43-46; 41pp; English.
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21-MAR-1995;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human; Nipl; Nip2; Nip3; Bip1A; Bip5; Bip13; adenovirus; cell death; viral infection; Bcl-2; protooncogene; mutational analysis; apoptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human Bc1-2 mutant
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ElB 19K protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13-APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAW94347;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAW94347 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (UYSL-) UNIV ST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       133
      77
                                     70
                                                                17
                                                                                                 37
                                                                                                                                Local Similarity es 46; Conserv
                                                                KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGFFSSQPGHTPHPAASRDPVARTSPLQTPA 76
                                                                                               EYVHARLLRAGLSW-----SAPERASPAPG-----
    APGSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTAR----GCFATVVEELFR 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ELYGPSMRPLFDFSWLSLKTLLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KCV-VSTKPGFRSHWL-VATLCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWDAFV
                                                                                                                                                                                             232 AA;
                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                     --VLLRLGDELEQIRPSVYRNVARQLHI-PLQSEPVVTDAFLAVAGHIFS 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  94US-0284139.
95US-0408095.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 95US-0408095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOUIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cell survival regulation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein #80-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Protein;
                                                                                                                                             14.48;
                                                                                                                              37;
                                                                                                                              Score 158; DB
Pred. No. 5.8e
37; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               232 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        197
                                                                                                                            DB 20;
.8e-09;
les 74;
                                                                                                                                                             Length
                                                                                                                              Indels
                                                                                              ----GRLAEVCT--
                                                                                                                              46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ç
                                                                                                                              Gaps
                                                                                               69
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10-NOV-1994;
26-AUG-1993;
25-MAY-1994;
                                                                                                                                                                designated Bax. The Bax protein is used in a composition which comprises a bcl-2 family member polypeptide, a naturally occurring Bax polypeptide and an antibody that binds to the Bax polypeptide. The specification also describes a composition comprising a hybrid protein comprising an activator domain of a transcriptional activator protein and a bcl-2 family member having a BHI domain and a BH2 domain another hybrid protein comprising a DNA-binding domain of the transcriptional activator protein and a second bcl-2 family member having a BHI domain and a BH2 domain; and a reporter gene linked to a transcriptional regulatory element whose transcriptional activity is dependent in the processor as the second of the transcriptional activity is
                                             of the two bcl-2 family members. The compositions are used to identify modulators of bcl-2-related function, e.g. substances that inhibit binding of Bax to bcl-2, which would be potentially useful as drugs
                                                                                                dependent on the presence or absence of a dimer of the two hybrid proteins. The bcl-2 family members are selected from naturally occurring Bcl-2, Bcl-xL, Bax, Mcl-1, Al, fragments thereof, and mutants having a mutation in the BHI and/or BH2 domain that alters intermolecular binding
Sequence
                                                                                                                                                                                                                                                                                                                                        The present sequence represents a murine Bcl-2 proteins specification also describes Bcl-2 associated proteins
                                                                                                                                                                                                                                                                                                                                                                                                                           DNA composition encoding bcl-2 two-hybrid and reporter system - identifying modulators of bcl-2 function
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 1999-105119/09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Korsmeyer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10-NOV-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 05-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US5856171-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mus sp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A murine Bcl-2 protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAW87811;
                                                                                                                                                                                                                                                                                                                                                                                           Example 10; Fig 7; 105pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (UNIW ) UNIV WASHINGTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    bcl-2-related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAW87811 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human; Bcl-2 associated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        177
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                               modulating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ELYGPSMRPLFDFSWLSLKTLLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KCV-VSTKPGFRSHWL-VATLCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWDAFV 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVL 176
 236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94US-0337646.
93US-0112208.
94US-0248819.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  function;
                               apoptosis
A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                94US-0337646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein; Bax; bcl-2; antibody; modulator;
apoptosis; dimer; Bcl-xL; Mcl-1; Al.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      236
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ā
                                                                                                                                                                                                                                                                                                                                                            The
                                                                                                                                                                                                                                         BH2 domain;
                                                                                                                                                                                                                                                                                                                                                                                                                                             tor
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Query Match Best Local S Matches 50

l Similarity 50; Conser

Conservative

14.3%; Score 157.5; DB 2 22.4%; Pred. No. 6.8e-09; tive 37; Mismatches 79

DB 20; 79;

Length

236; 57;

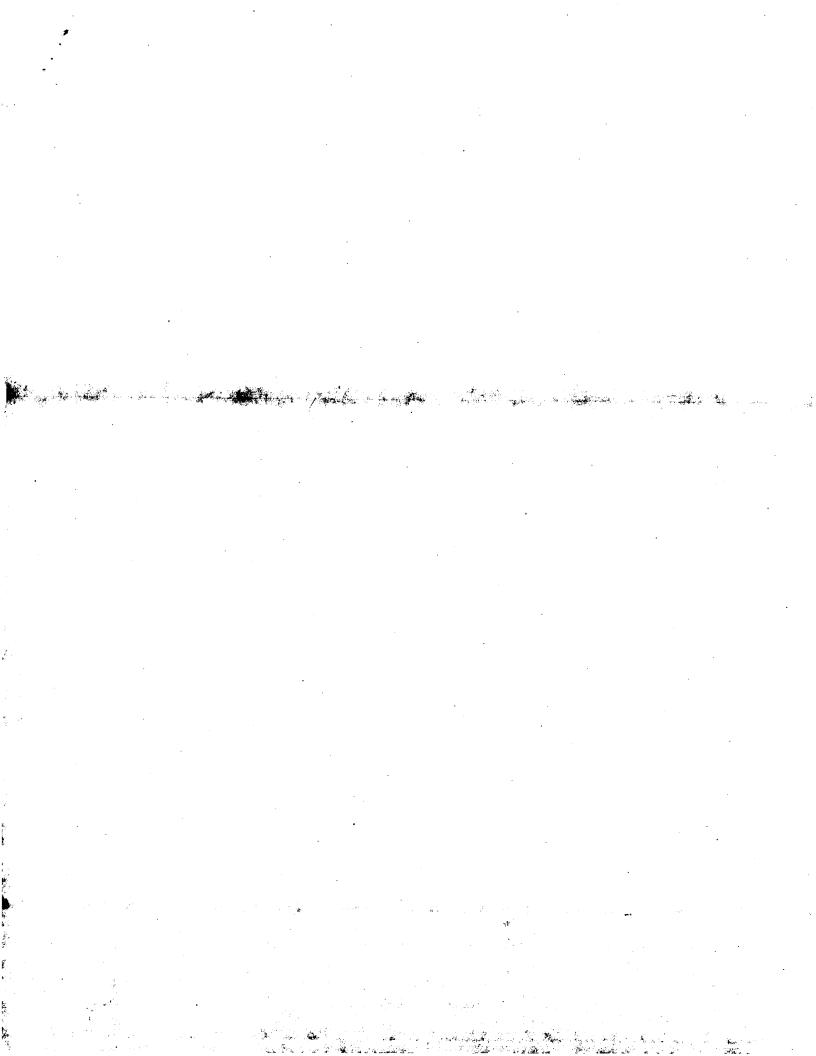
Gaps

8

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ARESULT 15
AAB74128
ID AAB74
XX AAB74
XX AAB74
XX 22-MA
XX Murin
KW Apopt
K
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                                               The present invention relates to a method of modulating apoptosis of a cell. The method comprises administrating to the cell an agent, comprising a BH1 domain or BH2 domain, capable of modulating formation of at least one complex selected from bcl-2:bcl-2 complexes, bcl-XL:bcl-XL complexes, bcl-2 associated X protein (Bax):Bax complexes, bcl-2:Bax complexes or bcl-XL:Bax complexes. Modulating apoptosis is sepecially useful in cancer therapy, and treating autoimmunity, immunodeficiency diseases (e.g. AIDS), reperfusion injury, myocardial infarction, stroke, traumatic brain injury, neurodegenerative diseases, aging, ischaemia, toxemia, infection, hepatitis, transplant rejection, and lymphoproliferative diseases. The present sequence is murine Bcl-2, which was used in a sequence alignment in the present interpretation, with murine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10-NOV-1994;
26-AUG-1993;
25-MAY-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Murine; Bax; cytostatic; immunosuppressive; immunostimulant; infection apoptosis modulator; bcl-2 associated x protein; cancer therapy, AIDS; autoimmunity; immunodeficiency; reperfusion injury; stroke; aging; myocardial infarction; traumatic brain injury; ischaemia; bcl-2; neurodegenerative diseases; hepatitis; transplant rejection; toxemia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Modulating apoptosis of a cell, useful in maintaining homeostasis adult tissues, or treating proliferative or autoimmune diseases, comprises administering a bol-2 polypeptide that interacts with a bol-2 associated X protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAB74128
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2001-256104/26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Korsmeyer SJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11-SEP-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   06-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US6184202-B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Murine bcl-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Example 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (UNIW ) UNIV WASHINGTON
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28 VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Fig 7; 105pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -GRFATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTE 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
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93US-0112208.
94US-0248819.
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                           human Bax (AAB74126) and human
                           Bcl-2 (AAB74127).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              197
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Best Local Similarity
                                                                                                                                                                                                                                                                                  Sequence
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                                                                                   97
                                                                                                                                         62
                                                                                                           61 VHREMAARTSPLRPLVATAGPALSPVPPCVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120
                                                                                                                                                                                             28 VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG-------
                                                                                                                                                                 1 MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDAGDADAAPLGAAPTPGIFSFQPESNPMPA
                          FVRKTLATWLRRRGGWTDVLKCV-VSTKPGFRSHWL-VATLCS 197
YLNRHLHTWIQDNGGWDAFVELYGPSMRPLFDFSWLSLKTLLS 219
                                                        FTAR---
                                                                                LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGE 156
                                                                                                                                                                                                                          50;
                                                                                                                                      -GRLAEVCTVLLRLGDELEQIRPSVYRNVAR-----
                                                                                                                                                                                                                                                                                  236
                                                       -GRFATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTE 176
                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                  ΑĄ,
                                                                                                                                                                                                                                        14.3%;
22.4%;
                                                                                                                                                                                                                          37;
                                                                                                                                                                                                                                     Score 157.5; DB :
                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                     DB 22;
                                                                                                                                                                                                                          79;
                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                   Length 236;
                                                                                                                                                                                                                         57;
                                                                                                                                       -QLHI-P
                                                                                                                                                                                                                       Gaps
                                                                                                                                      96
                                                                                                                                                                 60
                                                                                                                                                                                             61
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Search completed: April 29, 2003, 11:23:23 Job time : 33.5339 secs



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Result
No.
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Perfect score:
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852.5
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783
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    No. is the number of results predicted by chance to have a
re greater than or equal to the score of the result being printed,
is derived by analysis of the total score distribution.

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        April 29, 2003, 11:19:46 ; Search time 21.7493 Seconds
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Listing first 45
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sp_archea:*
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sp_vertebrate:*
sp_unclassified:*
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sp_archeap:*
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Q9US32
Q35425
                                                                                                                            Q9NGX3
Q9V612
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                                                                                                                                                                Q8T8Y5
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                                                                                                               Q9V9C8
Q923R6
Q919N4
Q919N36
Q99N36
Q35843
Q35844
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Q9DGJ5
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1610.532 Million cell updates/sec
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                                                                                      Q91812 gallus gall
Q9dg)5 gallus gall
Q8dg)5 gallus gall
Q8t8y5 drosophila
Q9ngx3 drosophila
Q9v612 drosophila
Q9v9c8 drosophila
Q9v9c8 drosophila
Q9v9c8 drosophila
                                                                                                                                                                                                                 088857 rattus norv
Q9ul32 homo sapien
035425 rattus norv
Q9umx3 homo sapien
Q923r6 cricétulus
Q919n4 brachydanio
Q99n36 mus musculu
035843 mus musculu
035844 mus musculu
                                                                                                                                                                                                                                                                                                            Description
                                   RESULT 1

O88857

ID 0888

AC 0888

DT 01-1

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DT 01-1

ROS Rat

OC Mai

OX NCI

RN NCI

RY NT

RT T

Query Match
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PROSITE;
SEQUENCE
                                                                                                                                                                                                                                    TISSUE=OVARY;
Hsu S.Y., Hsu
                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
TISSUE=OVARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=10116;
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84.5	85	85	85	86	89.5	90	92	92	92	92	93	94	97	97	98	98.5	99	99	101	102	102	103	103	103	104	104	104.5	106.5
9.6	9.6	9.6	9.6	9.7	10.1	10.2	10.4	10.4	10.4	10.4	10.5	10.6	11.0	11.0	11.1	11.1	11.2	11.2		11.5		11.7	11.7	1.	11.8	11.8	11.8	12.0
182	185	177	175	2497	172	209	192	173	149	114	172	173	179	178	204	163	221	193	180	233	188	233	233	180	217	188	233	238
16	12	2	11	16	11	11	9	4	σ	4	11	11	4	11	13	6	13	11	6	6	4	6	σ	9	11	11	6	<u>1</u> 3
Q8XUQ3	Q8VBG1	Q9AEZ3	Q925A9	Q8XYB9	055179	Q9JK59	Q8SQ43	Q8WZ49	Q9GMG7	Q9NR76	055177	Q9JKL3	Q9NYG7	Q9CYW5	Q90ZH2	Q9MZS6	Q98U13	966880	Q9BDX7	Q9MYW4	Q9H1R6	Q9N1A2	Q9MZS7	Q9BDD5	Q99N35	Q9QWX2	Q8SQ42	Q90Z98
	Q8vbg1 hepatitis b	Q9aez3 frankia sp.	Q925a9 rattus norv	Q8xyb9 ralstonia s	O55179 mus musculu	Q9jk59 rattus norv	feli	Q8wz49 homo sapien	ovis	homo	O55177 mus musculu	rati	Q9nyg7 homo sapien		Q90zh2 xenopus lae	ovis arie	Q98ul3 xenopus lae		Q9bdx7 bos taurus		homo	Q9n1a2 sus scrofa	ovi	S	Q99n35 mus musculu	Q9qwx2 mus musculu	m	Q90z98 brachydanio

ALIGNMENTS

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O88857; PRELIMINARY; PRT; 170 AA.
088857; O1-NOV-1998 (TrEMBLrel. 08, Created)
01-NOV-1998 (TrEMBLrel. 08, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
                                                                                                                   Submitted (FEB-1998) to the EMBL/GenBank/DDBJ databases. EMBL; AF051093; AAC61928.1; -. InterPro; IPR000712; Be12_BH. InterPro; IPR002475; Bc12_BH. Fram; PF00452; Bc1-2; 1. SMART; SM00337; Bc1-2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hsu S.Y., Kaipia A., McGee E., Lomeli M., Hsueh A.J.W.;
"Bok is a pro-apoptotic bcl-2 protein with restricted expression in
reproductive tissues and heterodimerizes with selective anti-apoptotic
bcl-2 family members.";
proc. Natl. Acad. Sci. U.S.A. 94:12401-12406(1997).
                                                                                                                                                                                                                                                                                                        Hsu S.Y., Hsueh A.J.W.;
Hsu S.Y., Hsueh A.J.W.;
"A splicing variant of the Bcl-2 member Bok with a truncated BH3
"Acmain induces apoptosis without dimerization with anti-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bcl-2-related ovarian killer protein. BOK.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Rattus norvegicus (Rat).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=98024143; PubMed=9356461;
                                                             PS50062; BCL2_FAMILY;
170 AA; 18729 MW;
   97.3%;
   Score 860;
                                                         15E54361F448CF16 CRC64;
   DB 11;
Length 170;
                                                                                                                                       17
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RESULT
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Matches
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                                                      01-JAN-1998
01-JAN-1998
01-JUN-2002
                                                                                                     035425
035425;
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01-MAY-2000
01-JUN-2002
                     BCL-2-related
BOK OR BOKL OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROSITE;
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (SEP-1998) to the EMBL/
EMBL; AF089746; AF09129.1; -.
InterPro; IPR000712; BcL2_BH.
InterPro; IPR002475; BCL2_family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bcl-2 related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; PF00452; Bc1-2; 1. SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=9606;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q9UL32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HSu S.Y., Hsueh A.J.W.;
CDNA cloning of the human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                         181
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                    OR.
                                                                                                                                                                                                     TWLRRRGGWTDVLKCVVSTKPGFRSHWLVATLCSFGRFLKAAFFLLLPER 170
                                                                                                                                                                                                                                                                                                                                                                                                                     MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                                                                                                                                                                                                                      WGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
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                                                                                                                                                                                                                                                                                                                                                                        GGRLAEVCTVLLRL - - - - -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
                                                                                                                                                                                                                                                                                                                                                                                                     MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                     al Similarity
170; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   il Similarity
167; Conserv
                    BOKL OR BOK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PS50062;
98 (TrEMBLrel. 05, Created)
18 (TrEMBLrel. 05, Last sequents)
2 (TrEMBLrel. 21, Last annots)
2 ted ovarian killer protein.
11 OR BOK OR MTD.
12 vegicus (Rat), and
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(TrEMBLrel. 13,
(TrEMBLrel. 21,
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                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BCL2_FAMILY;
; 23540 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  96.48;
79.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                killer.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Created)
Last sequence update)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pred. No. 4.5e-72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 852.5; DB 4
Pred. No. 2.9e-71;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1.
59509F8C7330517F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
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Matches 167
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Q9UMX3;
01-MAY-2000
                                                 Homo sapiens (Human).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
MCBI_TaxID=9606;
                                                                                                                                                 01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
BCL-2-related ovarian killer protein (Similar to BC killer protein-like-PENDING) (BCL-2-related ovarian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chen
                                                                                                                                   protein-like)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SPECIES-Mouse
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Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                     SEQUENCE FROM N.A
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167; Conservative
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78.4%;
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GIT

120 77

Craniata; Vertebrata; Catarrhini; Hominidae;

Hominidae;

Euteleostomi;

ovarian

killer

BCL-2-related

ovarian

212 ₽

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Hsu S.Y., Kaipia A., McGee E., Lomeli M., Hsueh A.J.W.; "Bok is a pro-apoptotic Bcl-2 protein with restricted exprepareductive tissues and heterodimerizes with selective Bcl-2 family members."; Proc. Natl. Acad. Sci. U.S.A. 94:12401-12406(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
SPECIES=Rat; STRAIN=SPRAGUE-DAWLEY;
MEDLINE=98024143; PubMed=9356461;
                MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
MEVLRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                                                                                                                                                                                                                                                                                                             at; STRAIN=SPRAGUE-DAWLEY; Hsueh A.J.W.; (OCT-1997) to the EMBL/Ge
                                                                                                                                                                                                                                                                                                                              Garcia
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                                                                                                                                                                                                                                                                                            EMBL/GenBank/DDBJ
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                                                                Score 828.5; DB 11; Pred. No. 4.8e-69; D; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Craniata; Vertebrata; Sciurognathi; Muridae;
                                                                                                                                      1.
F8755C45CB05D626 CRC64;
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Murinae; Rat
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re anti-apoptotic
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Best Local S
Matches 159
Query Match
Best Local Similarity
                                               SEQUENCE FROM N.A.

MEDLINE-20487164; PubMed-11034351;
Zhang H., Holzgreve W., De Geyter C.;
*Evolutionarily conserved Bok proteins in
FEBS Lett. 480:311-313(2000).
EMBL; AF275944; AAF81382.1; -.
InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; BcL2_family.
Pfam; PF00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
                                                                                                                                                                                              01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation updat
Bcl-2-related ovarian killer protein
Gallus gallus (Chicken)
Eukaryota; Metazoa; Chordata; Craniata; Vertebrat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (NOV-2001) to the EMBL/GenBank/DDBJ databases EMBL; AF174487; AAD51719.1; -. EMBL; BC005203; AAH06203.1; -. EMBL; BC017214; AAH17214.1; -. InterPro; IPR000712; Bc12_BH. InterPro; IPR0007712; Bc12_BH. InterPro; IPR000475; BCL2_family. Pfam; PF00452; Bc1-2; 1. SMART; SM00337; BCL-1; 1.
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Submitted (
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                             PROSITE; PS50062; BCL2_FAMILY; SEQUENCE 213 AA; 23619 MW;
                                                                                                                                                                                       Archosauria; Aves; Neognathae;
                                                                                                                                                                                                                                                             Q91812;
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77.1%;
61.5%;
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Score 681.5; DB Pred. No. 2e-55;
                                                                                                                                                                                     Craniata; Vertebrata; Euteleostomi;
; Galliformes; Phasianidae; Phasianinae;
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053ED605FF8EF5B2 CRC64;
                               B3AF7049F25442E3 CRC64;
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ODGJ5;
OPGGJ5;
O1-MAR-2001 (TrEMBLrel. 16, Last sequence update)
O1-MAR-2001 (TrEMBLrel. 21, Last annotation update)
O1-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Bcl-2-related ovarian killer protein.
Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteĥeostomi;
Eukaryota; Metazoa; Chordata; Galliformes; Phasianidae; Phasiani)
Q8T8Y5;
Q8T8Y5;
01-JUN-2002
01-JUN-2002
01-JUN-2002
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SMART; SM00337; BCL; 1.
SMART; SM00337; BCL2_FAMILY;
PROSITE; PS50062; BCL2_FAMILY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mils E.M., Johnson A.L., Bridgham J.T.;

"Characterization and Expression of Bok in the Hen Ovary.";

Submitted (JUL-2000) to the EMBL/GenBank/DDBJ databases.

EMBL; AF290888; AAG01182.1;

EMBL; AF290888; AAG01182.1;

InterPro; IPR00471; BC12_BH.

InterPro; IPR00475; BC12_BH.

InterPro; IPR00452; BC12_Family.
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|| | |||||| :|||| ||| ||:|||||
STDPSLRSHWLVAAVCSFGHFLKAIFFVLLPER 213
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                                             EMBL; AF237864; AAF44120.1; -, HSSP; Q07817; 1MAZ. FlyBase; FB970040491; Buffy. InterPro; IPR000712; Bc12_BH. InterPro; IPR0002475; BCL2_family. Pfam; PF00452; Bc1-2; 1. SMART; SM00337; BCL; 1.
NON_TER
SEQUENCE
                                                                                                                                "Debcl, a proapoptotic bcl-2 homologue, is a Drosophila melanogaster cell death machinery, J. Cell Biol. 148:703-714(2000).
                                                                                                                                                                                                                                                                                                      01-OCT-2000 (TrEMBLrel. 15, 01-OCT-2000 (TrEMBLrel. 15, 01-JUN-2002 (TrEMBLrel. 21, Bcl-2-like protein BUFFY (Fr
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BUFFY.
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MEDLINE=20153510; PubMed=10684252;
MEDLINE=20153510; PubMed=10684252;
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Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Musc
                                  PROSITE; PS50062; BCL2_FAMILY;
                                                                                                                                                                      Colussi P.A., Quinn L.M.
Richardson H., Kumar S.,
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Pterygota; Neoptera; Endopterygota; Diptera;
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Lewis S.E., Rubin
                                                                                                                                                                                                                                                                     Hexapoda;
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RA Ballew R. M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
RA Beeson K.Y., Benos P.V., Berman B.P., Brokstein P., Brottier P.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Center A., Chandra I.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Durbin K.J., Devillan A.E., Garg N.S., Gelbart W.M., Glasser K.,
RA Dodson K.J., Bvangelista C.C., Ferrae C., Ferriera S., Fleischmann W.,
RA Fosler C., Gabrielian A.E., Garg N.S., Gelbart W.M., Glasser K.,
RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Hostin D., Houston K.A., Howland T.J., Wei M.-H., Ibegwam C.,
RA Kimmel B.E., Kodira C.D., Kraft C., Kraft C., Krantson J.A., Ketchum K.A.,
RA Kimmel B.E., Kodira C.D., Kraft C., Kraft C., Krantson J.A., Ketchum K.A.,
RA Merikulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,
RA Merikulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,
RA Menter E., Relson K.A., Nixon K., Nusskern D.R., Pacleb J.M.,
RA Palazzolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,
RA Palazzolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,
RA Wang Z.-Y., Wassarman D.A., Weinstock G.M., Wang A.H., Wang X.,
RA Wang Z.-Y., Wassarman D.A., Weinstock G.M., Wang A.H., Wang X.,
RA Ye J., Yeh R.-F., Zaveri J.S., Zhan M., Zhang G., Zhao Q.,
Zheng L.,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LVATL-CSFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SVDCVRQGHPEYLPKLMESVSEVIEDELVPWINENGGWSGINTHVLPTTNSLNP----LEW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW----TDVLKCVVSTKPGFRSHW 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ERMHPRIYNGVARQICRNPGGEFHTPDAVSLLLGAVGRELFRVEITWSKVISLFAIAGGL 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Drosophilidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PubMed=10731132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RFLKAAFFLLLPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20.1%;
26.9%;
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13,
21,
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Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 178; DB 5; pred. No. 1.2e-08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               305
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Brachycera; Muscomorpha;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 313;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  91
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RA RA DR RL DR DR DR DR DR DR DR SQ
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Q9V9C8
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Best Local S
Matches 44
                                                                                                                                                                                                                                                                                                                                                             01-MAY-2000 (TrEMBLrel. 13, Created)
01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-UN-2002 (TrEMBLrel. 21, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DESCL'S (TremBLrel. 21, Last annotation update)
DESCL'S (BCL-2 family member protein) (BCL-2 ORTHOLOG DBORG-1).
DEBCL'D (BCL-2 family member protein) (BCL-2 ORTHOLOG DBORG-1).
DEBCL OR DBORG1 OR BOK OR BCL2 OR BG1 OR ROB-1 OR CG12397.
Drosophila melanogaster (Fruit fly).
Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha
                        Zhang H., I
Reed J.C.;
                                                                                                                                                                             Igaki T.,
Submitted
                                                                                                                                                                                                                                           cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FlyBase; FBgn0040491; Buffy.
InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; BCL2_family.
Pfam; PF00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; AE003825; AA
HSSP; Q07817; 1MAZ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Zheng X.H., Zhong F.N., Zhong W., Z
Gibbs R.A., Myers E.W., Rubin G.M.,
"The genome sequence of Drosophila
Science 287:2185-2195(2000).
                                                                         "Debcl, a proapoptotic Bcl-2 homologue, is a Drosophila melanogaster cell death machinery. J. Cell Biol. 148:703-714(2000).
                                                                                                                        SEQUENCE FROM N.D. PubMed=10684252; MEDLINE=20153510; PubMed=10684252; Outno L.M., Huang D.C.S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q9V9C8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q9V9C8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROSITE;
  conservation
                                                 SEQUENCE FROM N.
                                                                                                                Richardson H.,
                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                     REVISIONS
                                                                                                                                                                                                                                                                    Miura M.;
                                                                                                                                                                                                                                                                                          MEDLINE-20105529; PubMed-2015529;
                                                                                                                                                                                                                                                                                                          TISSUE-EMBRYO
                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
"Drosophila pro-apoptotic conservation of cell death
                                                                                                                                                                                                                                                        'Drob-1,
                                                                                                                                                                                                                                                                               Igaki T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             147
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                                                                                                                                                                                                                                           death
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                                                                                                                                                                                                                                                                               ., Kanuka
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PS50062; BCL2_FAMILY; 1.
247 AA; 27466 MW; A2C4325AFF4C1620 CRC64;
                                                                                                                                                                                                                                                  a Drosophila
                                                                                                                                                                                                     TO N-TERMINUS
                                    Huang
                                                                                                                                                                             Kanuka H., (SEP-1999)
                                                                                                                                                                                                                               Acad.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                        Drosophilidae;
                                                                                                                Kumar S.
                                    Ø. Þ
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                                      Кe
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27.8%;
                                                                                                                                                                             Inohara
to the E
                                                                                                                                                                                                                                                                              Inohara N.,
                                                                                                                                                                                                                                                                                                                                                        Endopterygota; Diptera;
ilidae; Drosophila.
 death
                                                                                                                                                                                                                               U.S.
                                                                                                                                                                                                                                                      member
                                    Z
,
           Bcl-2/Bax homolog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19;
                                   Matsuyama
                                                                                                                                                                                                                             .
A
mechanisms
                                                                                                                                                                             N., Sawamoto K.,
EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                     of the Bcl-2/CED-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 169.5; DB 5
Pred. No. 5.8e-08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     W., Z)
                                                                                                                                                                                                                             97:662-667(2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;

    Mismatches

                                                                                                                                                                                                                                                                              Sawamoto
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., Venter J.C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        melanogaster.";
                                    s.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               300
                                                                                                                            Coombe
                                    Hammock B., Godzik
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AA
                                                                                                                                                                                                                                                                              K., Nunez G.,
             reveals evolutionary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              42;
                                                                                         component of
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                                                                                                                                                                                                                                                                                                                                                                     Brachycera; Muscomorpha;
                                                                                                                                                                             Okano H.,
databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
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.
                                                                                                                                                                                                                                                     family
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                                                                                                                           Read S.H.,
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                                                                                                                                                                                                                                                     that promotes
                                                                                                                                                                                         Miura
                                                                                                                                                                                                                                                                               Okano
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                                                                                                   the
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RA Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolthakov S.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
RA Burtis K.C., Busam D.A., Butler H., Cadieu E., Center A., Chandra I.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Ferraz C., Ferriera S., Fleischmann W.,
RA Harris M.J., Evangelista C.C., Ferraz C., Ferriera S., Fleischmann W.,
RA Harris M.J., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,
RA Liu X., Mattei B., McIntosh T.C., McLeod M.P., McPherson D.,
RA Liu X., Mattei B., McIntosh T.C., McLeod M.P., McPherson D.,
RA Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,
RA Menschlow G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,
RA Menschlow G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,
RA Menschlow G., Siden K.A., Nixon K., Nusskern D.R., Pacleb J.M.,
RA Munt S.M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,
RA Shie B.C., Siden K.A., Nixon K., Nusskern D.R., Pacleb J.M.,
RA Shie B.C., Stapleton M., Skupski M.P., Smith T.,
RA Shie B.C., Stapleton M., Skupski M.P., Smith T.,
RA Yellam S.M., Wenter J., Zhan M., Zhang G., Zhao Q., Zheng L.,
RA
                                                                                                                                                                                                                                                                                                                                                          Zhou L., St
"Potential
(BOK).";
                                                                           EMBL;
                                                                                                                EMBL;
                                                                                                                                                                    EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Adams M.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D., Amanatides P.G., Scherer S.E., Li P.W., Hoskins R.A., Galle R.F., George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N., Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X., Barandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D., Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G., Abril J.F., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D., Balley R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
                                                                                                                                                    EMBL;
                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                        Brachmann C.B., Jassim O.W., Wachsmuth "dBorg-1, a Drosophila Bcl-2 family mer apoptotic response to UV-irradiation."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A. Kurada P., White K.; "Putative Drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    J. Biol. Chem.
[5]
                                                                                                                                                                                         EMBL;
                                                                                                                                                                                                                              Submitted
                                                                                                                                                                                                                                                                                                                                            Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein.
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                                      InterPro;
                                                          FlyBase;
                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted
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                                                                                                                                                   AF149798; AAF26841.1;
AF178430; AAF26289.1;
AF228044; AAF89165.1;
                                                                           AF222004; AAF44324.1;
AF244352; AAF44714.1;
                                                                                                                AE003789; AAF57365.1;
AF216752; AAF25955.1;
                                                                                                                                                                                                         AB032430; BAA89603.2;
                                                           FBgn0029131;
                                                                                                                                                                                                                                                                                                                                                                           Steller H.;
al Drosophila
                                                                                                                                                                                                                            (MAR-2000) to the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                        (JAN-2000)
                     IPR000712;
IPR002475;
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BCl2_BH.
BCL2_family.
Znf_C2H2.
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ALT_TERM
                                                                                                                                                                                                                                                                                                                                        EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL/GenBank/DDBJ
                                                                                                                                                                                       ALT_INIT
                                                                                                                                                                                                                                                                                                                                                                             of
                                                                                                                                                                                                                                                                                                                                                                             Bcl-2-related
                                                                                                                                                                                                                                                   member
                                                                                                                                                                                                                                                                                    B.D.,
                                                                                                                                                                                                                                                                                Cagan
                                                                                                                                                                                                                              databases
                                                                                                                                                                                                                                                                   functions
                                                                                                                                                                                                                                                                                                                                                                             ovarian
                                                                                                                                                                                                                                                                                    R.L.;
                                                                                                                                                                                                                                                                                                                                                                             killer
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le R.F.,
າກ S.N.,
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                                                                                                                                                                                                                                                                   the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         killer
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Q95U83
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Best Local S
Matches 42
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Best Local :
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01-DEC-2001
01-JUN-2002
                                                                                                                                                                                                                                                             Stapleton M., Brokstein P., Hong L., Agbayani A., Carlson J., Champe M., Chavez C., Dorsett V., Farfan D., Frise E., George Gonzalez M., Guarin H., Li P., Liao G., Miranda A., Mungall C., Nunco J., Pacleb J., Paragas V., Park S., Phouanenavong S., Wa Yu C., Lewis S.E., Rubin G.M., Celniker S.; Submitted (CCT-2001) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CONFLICT
                                                                                                                                                                                                                                                                                                                                                                   Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.
NCBI_TaxID-7227;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CONFLICT
SEQUENCE
                                                                                                                                                                                                       FlyBase; FBgn0029131; debc1.
InterPro; IPR000712; Bc12_BH.
Pfam; PF00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                                                                                                  STRAIN-BERKELEY;
                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                   Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda;
                                                                                                                                                                                                                                                                                                                                                                                                                           GH01265p.
DEBCL OR CG12397.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q95U83;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q95U83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE; PS50062; BCL2_FAMILY; 1.
PROSITE; PS50157; ZINC_FINGER_C2H2_2;
DNA-binding; Zinc-finger.
                                                                                                                                                                                                                                                  EMBL; AY058249; AAL13478.1;
216
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         DCVRQGHFDYLQCLIDGLAEIIGRPGLLADRQRRMVG
                               DCVRQAQPAMVHALVDCLGEFVRK - - TLATWLRRRGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MHPRVYTNISRQLSRAPFGELEDSDMAPMLLNLVAKDLFRSSITWGKIISIFAVCGGFAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DCVRQGHFDYLQCLIDGLAEIIEDDLVYWLIDNGGW 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DIINQGKCLCGQYIRARLRRAGVLNRKVTQRLRNILDPGSSHVVYEVFPALNSMGEELER 155
                                                                                                  DIINQGKCLCGQYIRARLRRAGVLNRKVTQRLRNILDPGSSHVVYEVFPALNSMGEELER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MHPRVYTNISRQLSRAPFGELEDSDMAPMLLNLVAKDLFRSSITWGKIISIFAVCGGFAI 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PF00452; Bcl-2; 1.
; SM00337; BCL; 1.
                                                                                                                                                l Similarity
42; Conserv
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217
300 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                               (TrEMBLrel.
(TrEMBLrel.
(TrEMBLrel.
                                                                                                                                                                                              317 AA;
                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                           -ASPAPGGRLAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                215
217
                                                                                                                                                                                             34649 MW;
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27.6%;
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19,
21,
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Last sequence up
Last annotation
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Pred. No. 8e-08;
17; Mismatches 4
                                                                                                                                                          Score 138;
Pred. No. 6.
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I -> V (IN REF. 1).
C -> R (IN REF. 4).
                                                                                                                                                                                              46B22FED1CC6F01F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FF29E0ADCF3D0942 CRC64;
                                                                                                                                                Mismatches
                                                                          -----VCTVLLRLGITWGKVVSLYSAAAGLAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              317
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                                                                                                                                                                     Length 317;
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RESULT 13
Q919N4
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Q923R6
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TIGREAMS; TIGRO0865; bcl-2; 1.

PROSITE; PSS0062; BcL2_FAMILY; 1.

PROSITE; PSS01080; BH1; UNKNOWN_1.

PROSITE; PS01258; BH2; UNKNOWN_1.

PROSITE; PS01259; BH3; UNKNOWN_1.

PROSITE; PS01250; BH4-1; UNKNOWN_1.

PROSITE; PS01260; BH4-1; UNKNOWN_1.

PROSITE; PS01260; BH4-2; 1.

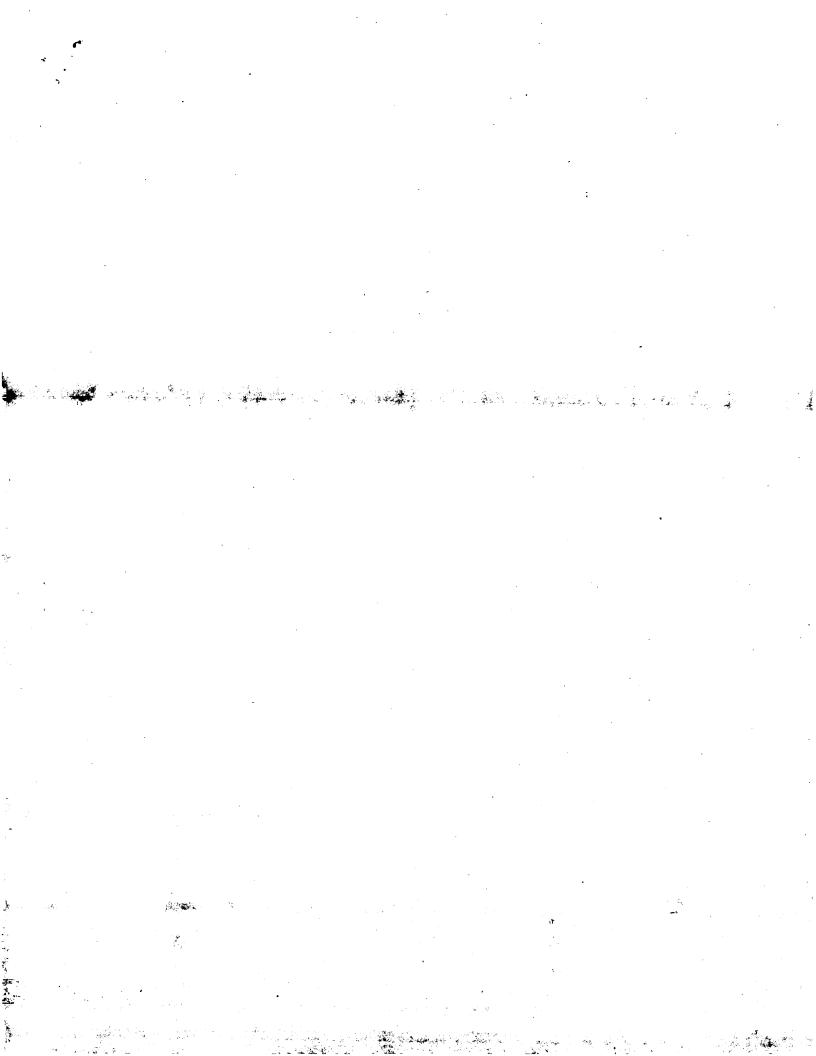
SEQUENCE 236 AA; 26500 MW; BEDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lai D.Z., Chen W., Wang H.T.;
"Construction of a robust CHO cell
Submitted (JUL-2001) to the EMBL/Ge
EMBL; AF404339; AAK92201.1;
InterPro; IPR000712; Bcl2_BH.
InterPro; IPR003093; Bcl2_BH2
InterPro; IPR003475; Bcl2_Family.
InterPro; IPR004755; Bcl2_reg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q923R6;
Q923R6;
                                      Eurachydanio rerio (Zebrafish)
Eukaryota; Metazoa; Chordata;
Actinopterygii; Neopterygii; 7
Cyprinidae; Danio.
NCBI_TaxID=7955;
                                                                                                                                                             BAX
                                                                                                                                                                                                        01-OCT-2000
01-JUN-2002
                                                                                                                                                                                                                                                      Q919N4;
01-OCT-2000
                                                                                                                                                                                                                                                                                                    Q919N4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       y Match
L Local Similarity
Thes 40; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cricetulus longicaudatus (Long-tailed hamster) (Chinese hamster).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-DEC-2001 (TrEMBLrel.
01-DEC-2001 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
B-cell lymphoma protein
SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=10030;
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                                                                                                                                                                                                                                                                                                                                                                                                                          HLHTWIQDNGGWDAFVELYGPSVRPLFDFSWL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VHRDMAARTSPLRPIVATTGPTLSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FTARGREATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TLATWLRRRGGWTDVLKCV-VSTKPGFRSHWL
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                                                                                                                                                                                                      (TrEMBLrel.) (TrEMBLrel.) (TrEMBLrel.
                                                                                                                                                                                                                                                                                                      PRELIMINARY;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BH4_1; UNKNOWN_1
BH4_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14.6%;
18.9%;
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15,
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19,
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Last
                                                                                      Teleostei;
                                                                                                                                                                                                                                                      Created)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 129.5; DB 11;
Pred. No. 0.00028;
Pred. No. 55;
                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BEDF052EF32CA8B8 CRC64;
                                                                                                                                                                                                        sequence update) annotation updat
                                                                                      danio).
ta; Vertebrata; Euteleostomi;
ei; Ostariophysi; Cypriniform
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              236
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                                                                                           Cypriniformes;
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                                                                     Query Match
Best Local S
Matches 25
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Best Local :
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                                                                                                                                                        PROSITE;
                                                                                                                                                                                                                                                                                                                                                Activity (Mouse).
Mus musculus (Mouse).
Mus musculus (Mouse).
Metazoa; Chordata;
Metazoa; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                    01-JUN-2001 (TrEMBLrel. 01-JUN-2001 (TrEMBLrel. 01-JUN-2002 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; AF231015; AAF66960.1; -. HSSP; P53563; 1AF3. InterPro: TDDOCCO.
                                                                                                                                                                                                                                      Submitted (MAR-1999) to the EMBL/GenBank/DDBJ databases EMBL; AF133279; AAK15454.1; --
EMBL; AF133281; AAK15454.1; JOINED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; BcL2_family.
Pfam; PF00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
                                                                                                                                                                               SMART; SM00337; BCL;
                                                                                                                                                                                                                                                                                                             STRAIN=129/SVJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Inohara N., Nunez G.; "Genes with homology to mammalian apoptosis regulators identified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=20373792; PubMed=10917738;
                                                                                                                                                                                                    InterPro; IPR000712; BCL2_BH.
InterPro; IPR002475; BCL2_family.
                                                                                                                                                                                                                              HSSP; P53563; 1AF3
                                                                                                                                                                                                                                                                         gene Bcl-x-gamma."
                                                                                                                                                                                                                                                                                  Yang X.-F., Cantor H.; "Novel cDNA structure and genomic organization of apoptosis"
                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                        109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              149
                                               66
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TLATWLRRGGWTDVLKCVVSTKPGFRSHWLVATLCSFGRFL 159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAPGGRLA 65
                      QVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATYLNDHLEPWIQE 168
                                             EVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PTQDVFIRVAREIFSDGKFNWGRVVALFYFACRLVIKAISTRVPDIIRTIISWTMSYIQE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EVCTVLLRLG-----ITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRK 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RSQLGGVELCD-----PSHKRLAQCLQQIGDELDGNAQLQSMLN------NSNLQ
                                                                                                                                                                                        PF00452; Bcl-2;
                                                                     Similarity 25.(
25; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PS50062; BCL2_FAMILY; 1.
192 AA; 21401 MW; 8A71A630A56FDC32 CRC64;
                                                                                                                                         PS50062; BCL2_FAMILY; 1.
PS01080; BH1; 1.
PS01259; BH3; 1.
                                                                                                                    219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                    AA;
TDVLKCVVSTKPGFRSH-----
                                                                                                                    24224 MW;
                                                                               12.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12.3%;
21.0%;
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17, Last sequence update)
21, Last annotation update)
a x-gamma (Fragment).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 108.5; DB Pred. No. 0.019;
                                                                    Score 108.5; DB Pred. No. 0.022; Mismatches
                                                                                                                                                                                                                                                                                                                                                          Craniata; Vertebrata; Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                    EB352EC4CFAA6AF5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
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-WLVAT 151
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 13;
                                                                                           DB 11;
                                                                      43;
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                                                                     Indels
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; Murinae; Mus
                                                                                             219;
                                                                     15;
                                                                                                                                                                                                                                                                                      regulatory
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                                                                    Gaps
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Best Local S
Matches 25
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01-JAN-1998
01-JUN-2002
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PROSITE;
PROSITE;
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SMART; SM00337; BCL;
SMART; SM00265; BH4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          apoptosis in T cells.";
Immunity 7:629-639(1997).
EMBL; U51277; AAC53458.1; -.
HSSP; P53563; 1AF3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     035843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIGRFAMS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAIN-B6/CBA; TISSUE-THYMUS;
MEDLINE-98051053; PubMed-9390687,
Yang X.-F., Weber G.F., Cantor H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bcl-x-gamma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          035843;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "A novel Bcl-x isoform connected
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         169
                                                                                             185 NGGWGVSGGTPLRSVFRRLVQV-PGVAEHVCDPSLWEVET
                                                                                                                                            126
                                                                                                                                                                                            125 QVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATYLNDHLEPWIQE
completed: April
ne : 22.7493 secs
                                                                                                                                                                                                                                    66 EVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NGGWGVSGGTPLRSVFRRLVQV-PGVAEHVCDPSLWEVET . 207
                                                                                                                                            RGGW-
                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                               PS01260; BH4_1; 1.
PS01260; BH4_2; 1.
PS50063; BH4_2; 1.
PS50063; BH4_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PS50062; BCL2_FAMILY; PS01080; BH1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             PS01259; BH3; 1.
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(TrEMBLrel.
(TrEMBLrel.
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                         29,
                                                                                                                                                                                                                                                                                                             12.3%;
                         2003,
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Last sequence update)
Last annotation update)
                      11:25:41
                                                                                                                                                                                                                                                                                       Score 108.5; DB Pred. No. 0.024; 7; Mismatches
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                                                                                                                                                                                                                                                                                                                                    DB 11;
                                                                                                                                                                                                                                                                                         43;
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                                                                                                                                            151
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                                                                                        18
                                                                                                                                                                                                                                                                                       15;
                                                                                                                                                                                                                                                                                       Gaps
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Title:
Perfect score:
Sequence: Result No. Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries Minimum DB Maximum DB Total number of hits satisfying chosen parameters: OM protein - protein search, using sw model Database Searched: Scoring table: 900 Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution. Score seq seq US-09-682-667-8 884 1 MEVLRRSSVFAAET length: 0 length: 2000000000 Query Match BLOSUM62 Gapop 10.0 , April 29, 2003, 11:18:26; Search time 5.99217 Seconds (without alignments) 1176.699 Million cell updates/sec 112892 seqs, 41476328 residues 15.8 14.9 114.9 114.9 112.7 111.8 11.8 SwissProt_40:* MEVLRRSSVFAAEIMDAFDR.....TLCSFGRFLKAAFFLLLPER 170 GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd. Length DB Gapext 0.5 BCL2_RAT
BCL2_BOVIN
BCL2_CRILO
BCL2_MOUSE
BCL2_CRICA
AR1_XENLA
BCLX_CHICK
AR1_XENLA
BCLX_CHICK
BCLX_FIG
BCLX_FIG
BCLX_HUMAN
BAXB_HUMAN
BAXB_HUMAN
BAXA_HUMAN
BAXA_MOUSE
BAXA_MOUSE
BAXA_MOUSE
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002718 bos taurus
09jjy8 cricetulus
910417 mus musculu
000709 gallus gall
091827 xenopus lae
007816 gallus gall
064373 mus musculu
P53563 rattus norv
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07140 homo sapien
071619 homo sapien Description 4 homo sapien
by homo sapien
mycobacteri
pseudomonas
drosophila
homo sapien
mus musculu
hepatitis b
hepatitis b rattus norv CC

ALIGNMENTS

D; PRT; 236 AA. Created) Last sequence update) Last annotation update) Last annotation update) Last sequence update) profess of the control of the control of the bcl2 gene family in the immature rate of the bcl2 gene family in the immature rate cyonadotropin-mediated inhibition of granulaticity of the bcl2 gene family in the immature rate cyonadotropin-mediated inhibition of granulaticity of the bcl2 gene family in the immature rate cyonadotropin-mediated inhibition of granulaticity of the bcl2 gene family in the immature rate cyonadotropin-mediated inhibition of granulaticity of the bcl2 gene family in the immature rate cyonadotropin-mediated bax and constitutive scaped in N.P., Tzimagiorgis G., Thoenen H., ad-7969891; profess apoptosis in a variety of cell systems appendent lymphohematopoietic and neural cells spendent lymphohematopoietic and neural cells are function in a feedback loop system with caspase activity either by preventing the mitcochondrial and/or by binding and formation with BAX requires intact BH1 and Exessary for anti-apoptotic activity (By similarity). Outer mitcochondrial membrane, intracellulum. Expressed in a variety of tissues, with page in the adult brain, its control of hippocampus, pontine nuclei, with page in the olfactory bulb, all neurons of hippocampus, pontine nuclei.		CC expression is lo			similarit	Bcl-x(L)	-!- SUBUNIT:	the apopto	caspases.	permeabil:	including		adult	RT "bc1-2 messenger RNA	Castren E., Onga	MEDLINE=95059917;	SEQUENCE OF 19-172	RN [3]	bc1-2	cell	ovary	RT "Expression of members	MEDLINE=95129487;		Š	Gene 140:29	Sato T., Iri	MEDLINE=9419	RC TISSHERRAID	[1]	NCBI_TaxID=10116;	Eukaryota; Metazo	us norvegicus	Apoptosis regulator	DT 15-JUN-2002 (Rel. 41,	01-OCT-1996 (Re	LD BCL2_RAT STANDARD; AC P49950: 062837: 064032:	SULT 1 L2_RAT
ir) 12 do to	neurons of hippocampus, pontine nucre	of the	SPECIFICITY: Expressed in a variety of tissues, with	نو	similarity	BH1 and E	rs with BAX, BAD, BAR	dria and/or by binding	from the mitterhand in preventing the	Appears to function in a feedback loop system with	phohematopoiétic	in a variety of cell s		is localized in neurons of the developing	., Tzimagiorgis G., Thoenen		PROM N.A.	32-241(1995).	messenger ribonucleic acid levels.";	ed bax and constitu	c gonadotropin-mediated inhibition of	of the bcl-2 gene family in the immature ra	ed=7828536;	***	77	encoding the rat Bcl-2 protein.	ed J.C.;	ıbMed≈8144041;			sciuroghachi; muridae; murihae;	Craniata; Vertebrata; Euteleosto		•	Last	reat	PRT; 236	

cerebellar granule neurons, and in ependymal cells. In prenatal

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Best Local S
Matches 45
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PROSITE; PS50062; I
PROSITE; PS01080; I
PROSITE; PS01258; E
PROSITE; PS01259; I
PROSITE; PS01260; I
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CONFLICT
CONFLICT
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between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SMART;
                                                                                                                                                                                                                                                                                                                                                                    SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF00452; Bc1-2; Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      modified and this statement is not removentities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                 MOD_RES
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InterPro; IPR004725;
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  61
                                        62
                                                                                                                      28 VAQAKALG -----
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and in t
DOMAIN:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Dephosphorylated by protein phosphatase 2A (PP2A) (By simil PTM: Proteolytically cleaved by caspases during apoptosis: cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytospromoting further caspase activity (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle. In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases.
VHRDTAARTSPLRPLVANAGPALSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SWISS-PROT entry is copyright. It is produced through een the Swiss Institute of Bioinformatics and the EN
                                                                              MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDTGDEDSAPLRAAPTPGIFSFQPESNRTPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             L14680; AAA53662.1;
U34964; AAA77687.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q07817;
                                                                                                                                                                l Similarity
45; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SM00265;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          interaction with RAF-1 (By similarity)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PS50063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIGR00865;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IPR000712;
                                                                                                                                                                                                                                        42
157
164
212
236
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The BH4 domain is required for
                                                                                                                                                                Conservative
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90
133
184
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     вн3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BCL2_FAMILY;
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104
152
199
230
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164
                                                                                                       -REYVHARLLRAGLSW-----SAPERASPAPG
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Bcl2_BH4.
Bcl2_reg.
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                                                                                                                                                                               15.8%;
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                                                                                                                                                                                                                                            MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mitochondrion;
                                                                                                                                                                26;
                                                                                                                                                                                                                                                      BH3.

BH1.

BH2.

BH2.

POTENTIAL.

CLEAVAGE (BY CASPASES) (BY PHOSPHORYLATION (BY PKC) (A A -> R (IN REF. 2).

E -> G (IN REF. 2).

L -> Q (IN REF. 2).

L -> Q (IN REF. 2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                is not removed.
                                                                                                                                                                               Score 140;
Pred. No. 1.
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                                                                                                                                                                                                                                              E7688CB9071A872A CRC64;
                                                                                                                                                                Mismatches
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..5e-06;
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ION (BY PKC) (BY SIMILARITY).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   its content
                                                                                                                                                                                                    Length 236;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and the
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BCL2_HUMAN
                                                                                                                        MEDLINE=91066924; pubMed=2250705;
Hockenbery D., Nunez G., Milliman
"Bcl-2 is an inner mitochondrial m
programmed cell death.";
                                                                                                                                                                                                                                                                                                                                                                                                                 "Alternative promoters and exons, somatic of the Bc1-2-Ig fusion gene in lymphoma.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BCL2_HUMAN STANDARD; PRT; ;
P10415; P10416; Q16197; Q13842;
Q1-MAR-1989 (Rel. 10, Created)
Q1-APR-1993 (Rel. 25, Last sequence up
15-JUN-2002 (Rel. 41, Last annotation
                       Yin
                                        MEDLINE=94239528;
                                                                                                                                                                                                                                                   oncogenes of non-Hodgkin's lymphomas.";
Blood 79:229-237(1992).
                                                                                                                                                                                                                                                                                                                                 MEDLINE=92096610;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Goldman P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A. (ISOFORM ALPHA)
MEDLINE-88196071; PubMed-2834197;
Seto M., Jaeger U., Hockett R.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2/immunoglobulin transcript
translocation.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Cleary M.L., Smith S.D., Sklar J.;
"Cloning and structural analysis of cDNAs
"Ammunoalobulin transcript resulting from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A. MEDLINE=87002488; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         in a variety of tissues including lymphoid adult and embryo.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=92375724;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           bc1-2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=86259760;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota, Metazoa;
                                                                MUTAGENESIS
                                                                                                         Nature
                                                                                                                                                                                                               SUBCELLULAR LOCATION
                                                                                                                                                                                                                                                                                            Fanaka S., Louie D.C., Kant J.A., Reed J.
Frequent incidence of somatic mutations
                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 1-131 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                    EMBO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REVISIONS TO 96; 110 AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Tsujimoto Y., Croce C.M.;
"Analysis of the structure,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mammalia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
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  1 X.-M., Ol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    47:19-28(1986).
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                                                                                                       nmed cell death.";
348:334-336(1990)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the gene involved
                                                                                                                                                                                                                                                                                                                                                                                                  7:123-131(1988).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       regulator Bcl-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ewert D.L.,
                   Oltvai
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Korsmeyer S.J
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   110 AND 237.
; PubMed=1508712;
D.L., Tsujimoto Y
  pubMed=8183370;
Z.N., Korsmeyer
ins of Bcl-2 are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PubMed=2875799;
                                                                                                                                                                                                                                                                                                                                 PubMed=1339299;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     . (ISOFORMS ALPHA PubMed=3523487;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (ISOFORM ALPHA).
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Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ture, transcripts, and protein ped in human follicular lymphoma. U.S.A. 83:5214-5218(1986).
    Korsmeyer
Bcl-2 are
                                                                                                                                                                                                                                                                                                                                                       (ISOFORM ALPHA),
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S.J.;
required
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Graninger W.,
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                                                                                                                                                                   Schreiber
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                                                                                                                                              reiber R.D., I
protein that
                                                                                                                                                                                                                                                                                                                                                                                                                                           mutation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for bcl-2
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            bcl-2 gen
neuronal
      inhibition
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bennett S.,
                                                                                                                                                                                                                                                                                                                                                           VARIANTS
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                                                                                                                                                Korsmeyer S.J.;
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                                                                                                                                                           use by non-profit institutions as long a
modified and this statement is not removed.
entitles requires a license agreement (See l
or send an email to license@isb-sib.ch).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ueno K., Hardwick J.M.;
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     EMBL; M13994;
EMBL; M13995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PHOSPHORYLATION BY ASK1/JNK1
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SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH1)

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2)

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3)

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4)

SIMILARITY: BELONGS TO THE BCL-2 FAMILY.

SIMILARITY: NAME-Atlas Genet. Cytogenet. Oncol.
                                                                                                                                                                                                                                                                                                                                                                                       s SWISS-PROT entry is copyright. It is produced through ween the Swiss Institute of Bioinformatics and the EN European Bioinformatics Institute. There are no restricted the state of the s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle. In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases. Dephosphorylated by protein phosphatase 2A (PP2A) (By similarity). PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding the apoptosis-activating factor (APAF-1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             promoting further caspase activity
DISEASE: Involved in follicular lymphoma (FL) (also known as type
II chronic lymphatic leukemia) by a chromosomal translocation
t(14;18)(q32;q21) which involves Bcl2 and immunoglobulin gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                are produced by alternative splicing. TISSUE SPECIFICITY: Expressed in a va DOMAIN: The BH4 domain is required for the specific of the specifi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (BY similarity). Also interacts with APAF-1 and RAF-1. SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum. ALTERNATIVE PRODUCTS: 2 isoforms; alpha (shown here) and beta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          www="http://www.infobiogen.fr/services/chromcancer/Genes/BCL2ID49.html"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for interaction with RAF-1.
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phosphorylated and inactivated by an ASK1/Jun N-terminal phosphorylated and inactivated at G(2)/M.";
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B29409; TVHUB1.
                                                              LLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWT
                                                                                                                                                                                                                                                                {\tt KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPAARTSPLQTPAARTSPLQTPAARTSPLQTPAARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLQTPARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTSPLARTS
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X06487; CAA29778.1;
S72602; AAD14111.1;
                                                                                                                                APGAAAGPALSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTARGRFATVVEE
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IPR003093; Bc12_BH4.
IPR004725; Bc12_reg.
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Phosphorylation; Chromosomal translocation;
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19.4%;
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D->A: ABOLISHES CLE
D->A: ABOLISHES CLE
D->A: NO EFFECT ON of the control of 
                                                                                                                                                                                                                                                                                                                                                                                                Score 133; DB
Pred. No. 7.1e
26; Mismatches
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POTENTIAL.
CLEAVAGE (BY CASPASE-3).
PHOSPHORYLATION (BY PKC) (BY SIMILARITY).
DAFVELYGPSMRPLEDFSWLSLKTLLSLALVGACITLGAYL
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/FTId=VAR_000828
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P -> S (IN NON-H
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OF ANTI-APOPTOTIC ACTIVITY
F (IN REF. 4)
F (IN REF. 3)
R (IN REF. 3)
C (IN REF. 4)
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NO EFFECT ON CLEAVAGE BY CASPASE-3.
NO HETERODIMERIZATION WITH BAX AND
OF ANTI-APOPTOTIC ACTIVITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NO HETERODIMERIZATION WITH BAX
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196
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B 8

197 AFVELYGPSMRPLFDFSWLSLKTLLS

154 222

DVLKCV-VSTKPGFRSHWL-VATLCS

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RESULT 3
BCL2_BOVIN
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or send a
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                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EN the European Bioinformatics Institute. There are no restr
                          HSSP;
                                                  EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Reyes R.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN-Holstein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mammalia; Eutheria; Cetartiodactyla; Bovidae; Bovinae; Bos. NCBI_TaxID=9913;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BCL2_BOVIN
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  InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Bovine leukemia virus associated-leukemogenesis is correlated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Apoptosis regulator Bcl-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16-OCT-2001 (Rel.
16-OCT-2001 (Rel.
15-JUN-2002 (Rel.
                                                                                                                                                                                                                                                                                                         PTM: Proteolytically cleaved by caspases during apoptosis. cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytos promoting further caspase activity (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondrial and/or by binding to the apoptosis-activating factor (APAF-1) (By similarity). SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and Bcl-x(L). Heterodimerization with BAX requires intact BH and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1 (By similarity). SUBCLIJULAR LOCATION: Outer mitochondrial membrane, intracellular and the substance of the control of th
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        similarity).

DOMAIN: The BH4 domain is required for anti-apoptotic activity for interaction with RAF-1 (By similarity).

for interaction with RAF-1 (By similarity).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      taurus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   occurs during the G2/M phase of the cell cycle (By similarity). the absence of growth factors, Bcl2 appears to be phosphorylated
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kinases. Dephosphorylated
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                          U92434; AAB53319.1;
Q07817; 1MAZ.
                                                                                                  non-profit institutions as long ad and this statement is not removed. s requires a license agreement (See lan email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (MAR-1997) to the EMBL/GenBank/DDBJ
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    Last sequence update)
    Last annotation update)

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  BCL2_family
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d by protein
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                as ERKs
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MBL outstation -
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Best Local
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                                                                                                                                                                                                                   BCL2_CRILO
Q9JJV8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SITE
MOD_RES
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SMART;
                                                                                                                                       Cricetulus longicaudatus (Long-tailed hamster) (Chinese hamster).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
                                                                                                                                                                      BCL2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DOMAIN
DOMAIN
MEDLINE=21092839;
Tomicic M.T., Kai
                                                                          TISSUE=Ovary;
MEDLINE=20431763; PubMed=10973819;
                                                                                                                   NCBI_TaxID=10030;
                                                                                                                               Cricetulus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam; PF00452; Bc1-2;
                   SEQUENCE FROM N.A.,
                                               protein
                                                         Tomicic M.T., Christmann M., Kaina B.;
"Cloning and functional analysis of cDNA encoding
                                                                                                SEQUENCE FROM N.A
                                                                                                                                                                                Apoptosis
                                                                                                                                                                                        16-OCT-2001
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TIGRFAMs;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro;
                                                                                                                                                                                                            6-OCT-2001
                                                                                                                                                                                                                                                                                197
                                                                                                                                                                                                                                                                                                                     137
                                                                                                                                                                                                                                                                                                                                                                               62
                                                                                                                                                                                                                                                                                                                                        81
                                                                                                                                                                                                                                                                                                                                                            77
                                                                                                                                                                                                                                                                                                                                                                                                  17
                                                                                                                                                                                                                                                                                                                                                                                                                    37 EYVHARLLRAGLSW-----SAPERASPAPG--
                                                                                                                                                                                                                                                                                RPLFDFSWL-
                                                                                                                                                                                                                                                                                                 KPGFRSHWLVATLCSFGRFLKAAFFLLL
                                                                                                                                                                                                                                                                                                                                        VVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRGGWTDVLKCV-VST
                                                                                                                                                                                                                                                                                                                                                                                                  KYIHYKLSQRGYEWDAGDAGAAPPGAAPAPGILSSQPGRTPAPSRTSPPPPPAAAAAGPAP
                                                                                                                                                                                                                                                                                                                      IVAFFEFGGVMCVESVNREMSPLVDSIALWMTEYLNRHLHTWIQDNGGWDAFVELYGPSM
                                                                                                                                                                                                                                                                                                                                                            SPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTARERFATVVEELFRDGVNWGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; PS50062; BCL2_F; PS01080; BH1; 1; PS01258; BH2; 1; PS01259; BH3; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                    Biophys.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PS50063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIGR00865;
                                                                                                                                                                              regulator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IPR004725;
                                                                                                                                                                                       Rel. 40,
1 (Rel. 40,
2 (Rel. 41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Transmembrane; Mitochondrion; Phosphorylation.
                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AA;
                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; BH4_1; 1.
; BH4_2; 1.
          PubMed=11181062;
                                       Res.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30
68
72
97
145
192
223
35
                                                                                                                                                                              0, Last sequence update)
1, Last annotation updat
Bcl-2.
                                                                                                                                                                                                                                                                                ----SLKALLSLAL
                   AND CLEAVAGE BY CASPASES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bc12_BH.
Bc12_BH4.
Bc12_reg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                bc1-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  14.9%;
19.7%;
                                                                                                                                                                                                            Created)
                                       Commun.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FAMILY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MW.
                                                                                                                                                                                                                                                                                                                                                                                                                                       26;
                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 132; DB 1;
Pred. No. 8.4e-06
6; Mismatches 5:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BH4.
POLY-PRO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BH2.
POTENTIAL.
CLEAVAGE (BY CASPASES) (BY SIMILARITY)
PHOSPHORYLATION (BY PKC) (BY SIMILARIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POLY-ALA.
                                       275:899-903(2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADIDDOAF98FFF11D CRC64;
                                                                                                                                                                                                                                                                                215
                                                                                                                                                                                                                                                                                                   167
                                                                                                                                                                                                                               236
                                                                                                                                                                                        update)
                                                                                                                                                                                                                                                                                                                                                                               ------GRLAEVCTVLLRLGITWGK
                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 229
                                                           the
                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                           hamster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                       86;
                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                            136
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                                                                                                                                                                                                                                                                                                                                                                                                                     61
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Query Match
Best Local
                                      MOD_RES
SEQUENCE
                                                                                           DOMAIN
DOMAIN
                                                                                                                                                                                        PROSITE; PROSITE;
                                                                                                                                                                                                                                 TIGRFAMS;
PROSITE; F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Biochem.
                                                                  SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -
                                                                                                                                                                                                                                                           SMART; SM00337;
SMART; SM00265;
                                                                                                                                                                                                                                                                                                                                                                                                                          entities requires a license agreement
                                                                                                                                                                                                                                                                                                                                                                                                                                     use by non-profit institutions as modified and this statement is not re
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <del>:</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and
                                                                                                                                   Apoptosis;
                                                                                                                                                                                                                                                                                   Pfam; PF00452;
Pfam; PF02180;
                                                                                                                                                                                                                                                                                                                                                                      HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                            or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                               the European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 between
                                                                              TRANSMEM
                                                                                                                                                               PROSITE;
                                                                                                                                                                                                                   PROSITE
                                                                                                                                                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                                                                                          InterPro;
                                                                                                                                                                                                                                                                                                                                        InterPro;
                                                                                                                                                                                                                                                                                                                                                      InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Hamster Bcl-2 protein is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 activity, causes the release of cytochrome promoting further caspase activity.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH-SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH-SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH-SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH-SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      membrane of the nuclear envelope and the endoplasmic reticulum.

DOMAIN: The BH4 domain is required for anti-apoptotic activity and for interaction with RAF-1 (By similarity).

PTM: Phosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle (By similarity). In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated Kinases (By similarity). Dephosphorylated by protein phosphatase 2A (PP2A) (PP2A)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and Bel-x(L). Heterodimerization with BAX requires intent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1 (By similarity) SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    caspase-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PTM: Proteolytically cleaved by caspases cleaved protein, lacking the BH4 domain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       release of cytochrome c from the mitochondria and/or by binding to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SWISS-PROT entry is copyright. It is produced through
en the Swiss Institute of Bioinformatics and the En
Burobean Bioinformatics Institute There are no resti
                                                                                                                                                                                                                                                                                                                                                                                  AJ271720; CAB92245.1; -.
                                                                                                                                                                                                                                                                                                                                                                    Q07817;
Similarity
                                                                                                                                                                          PS01080;
PS01258;
PS01259;
PS01260;
                                                                                                                                                               PS50063;
                                                                                                                                                                                                                                 PS50062;
                                                                                                                                                                                                                                                                                                                IPR004725;
                                                                                                                                                                                                                                                                                                                                                      IPR002475;
                                                                                                                                                                                                                                            TIGR00865;
                                       10
90
133
184
209
64
70
236
                                                                                                                                              Transmembrane; Mitochondrion; Phosphorylation
                                                                                                                                                                                                                                                                                    Bcl-2;
BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Suppresses
                                                                                                                                                                                                                                                           BH4;
                                                                                                                                                             BH4_1;
BH4_2;
                                                                                                                                                                                                                             55; bcl-2; 1.
BCL2_FAMILY;
                                                    30
104
152
199
230
65
                                        26491
                                                                                                                                                                                                                                                                                                           Bcl2_reg.
                                                                                                                                                                                                                                                                                                                           Bc12_BH4.
                                                                                                                                                                                                                                                                                                                                                      BCL2_family.
 14
19
                                                                                                                                                                                                                                                                                                                                        BC12_BH
. 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         apoptosis in
                                        MW.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cleaved in vitro and in
                                                                                                                                                                                                                                                                                                                                                                                                                                     is not removed.
                                                                BH3.
BH1.
BH2.
POTENTIAL.
CLEAVAGE (
                                    CLEAVAGE (BY CASPASE-3 AND CASPASE-9).
PHOSPHORYLATION (BY PKC) (BY SIMILARITY).
BECADF1EF3337228 CRC64;
            Score
No.
                                                                                                                                                                                                                                                                                                                                                                                                                         (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a variety
1.1e-05;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 (BH1)
2 (BH2)
3 (BH3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (BH4)
                                                                                                                                                                                                                                                                                                                                                                                                                                       Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  during apoptosis.
has pro-apoptotic
me c into the cyto;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of cell
           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DOMAIN.
DOMAIN.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BCL2_MOUSE STANDARD
P10417; P10418;
01-MAR-1989 (Rel. 10, C
01-APR-1993 (Rel. 25, L
15-JUN-2002 (Rel. 41, L
                                                                                                                                                                                                                                                                    MEDIINE-97277291; PubMed-9115213; Ito T., Deng X., Carr B., May W.S. Jr "Bcl-2 phosphorylation required for a J. Biol. Chem. 272:11671-11673(1997).
                                                                                                                                                                                                                                                                                                                                                  Nucleic [3]
                                                                                                                                           phosphatase 2A*.
J. Biol. Chem. 2
-!- FUNCTION: Su
                                                                                                                                                                                  Deng X., Ito T., Carr B., Mumby M., May W.S. Jr.; "Reversible phosphorylation of Bcl2 following interleukin bryostatin 1 is mediated by direct interaction with prote
                                                                                                                                                                                                                                                                                                                                                                                          'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Negrini M., Silini E., Kozak C., Tsujimoto Y., Croce C.M.; "Molecular analysis of mbcl-2: structure and expression of the murine gene homologous to the human gene involved in follicular lymphoma."; Cell 49:455-463(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN-BALB/c; TISSUE=Liver; MEDLINE=87187643; PubMed=3032455;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOUSE
                                           --
                                                                                                                                                                                                                             DEPHOSPHORYLATION BY PP2A.
MEDLINE=99069407; PubMed=9852076;
                                                                                                                                                                                                                                                                                                                                                                              adult
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Apoptosis regulator Bcl-2 BCL2 OR BCL-2.
                                                                                                                                                                                                                                                                                                                                 PHOSPHORYLATION BY PKC,
                                                                                                                                                                                                                                                                                                                                                                                      "Isolation and characterization of the chicken in a variety of tissues including lymphoid and
                                                                                                                                                                                                                                                                                                                                                                                                                     Eguchi Y., Ewert D.L., Tsujimoto Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=92375724;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 REVISIONS TO 221-222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28 VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDVGDVDAAPLGAAPTPGIFSFQPESNPTPA
                         the apoptosis-activating factor (APAF-1). SUBUNIT: Forms homodimers, and heterodimers with BAX, Bcl-x(L). Heterodimerization with BAX requires intact
                                                                FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding t
             domains, and is necessary for anti-apoptotic activity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TLATWLRRRGGWTDVLKCV-VSTKPGFRSHWL-VATLCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FTARGREATVVEELERDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VHRDMAARTSPLRPIVATTGPTLSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HLHTWIQDNGGWDAFVELYGPSVRPLFDFSWLSLKTLLS
                                                                                                                                                                                                                                                                                                                                                                             and embryo.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             43;
                                                                                                                                                                                                                                                                                                                                                              Acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -GRLAEVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (Mouse)
                                                                                                                                                                                                                                                                                                                                                              Res.
                                                                                                                                                        273:34157-34163(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
Also interacts
                                                                                                                                                                                                                                                                                                                                                                                                                                    PubMed=1508712;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (ISOFORMS
                                                                                                                                                                                                                                                                                                                                                            20:4187-4192(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Created)
                                                                                                                                                                                                                                                                                                                                AND MUTAGENESIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ALPHA AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Craniata; Veri
Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                     Jr.;
                                                                                                                                                                                                                                                                                    anti-apoptosis
APAF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                 Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A
                                                                                                                                                                                                                                                                                                                                 SERINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             57;
                                                                                                                                                                                                                                                                                                                                                                                         bcl-2 gene: expression
neuronal organs in
                                                                                                                                                                                                                                                                                                                                 RESIDUES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                       function.";
                                                                                                                                                                                   protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Murinae;
                         BAD,
BH1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             92;
                                                                   binding to
                                                                                                                                                                                                  or
                         ), BAK and
and BH2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                117
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SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum. ALTERNATIVE PRODUCTS: 2 isoforms; alpha (shown here) and beta;

are produced by alternative splicing. TISSUE SPECIFICITY: Expressed in a va

DOMAIN: The BH4 domain

interaction with

(BH1) (BH2) (BH3) (BH4)

DOMAIN.
DOMAIN.
DOMAIN.
DOMAIN.

anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle. In the absence of growth factors, Bc12 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases.

Dephosphorylated by protein phosphatase 2A (PP2A).

Proteolytically cleaved by caspases during apoptosis. The ved protein, lacking the BH4 domain, has pro-apoptotic vity, causes the release of cytochrome c into the cytosol

The

protein

PTM: Phosphorylation/dephosphorylation on Ser-70

RAF-1

ssed in a required

for

anti-apoptotic

activity and

regulates

Bc12

variety of tissues

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and

restrictions

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on on EMBL

a collaboration -

outstation

and

for

through the

entities

between

This

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Ş
                                            Query Match
Best Local
               Matches
                                                                                                                                PROSITE; PS50062; B
PROSITE; PS01080; B
PROSITE; PS01258; B
PROSITE; PS01259; B
PROSITE; PS01260; B
PROSITE; PS50063; B
                                                         Phosphorylation.
DOMAIN 10
DOMAIN 90
DOMAIN 133
DOMAIN 184
TRANSMEM 209
SITE 34
MOD_RES 70
VARSPLIC 193
                                            SEQUENCE
                                                                                                                                                                                   SMART;
                                                                                                                                                                                                 Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                     InterPro; IPR002475; InterPro; IPR000712; InterPro; IPR003093;
                                                                                                                                                                                                                                                                                      EMBL;
                                                                                                                                                                                                                                                                                                           or send
                                                                                                                                                                                                               InterPro; IPR004725;
                                                                                                                                                                                                                                            MGD; MGI:88138;
                                                                                                                                                                                                                                                         PIR; B25960; TVMSB1.
PIR; E37332; E37332.
                                                                                                                                                                                                                                                                                              EMBL;
28 VAQAKALG---
                                                                                                                                                                                                                                                                              L31532; AAA37282.1;
M16506; AAA37282.1;
M16506; AAA37281.1;
               l Similarity
43; Conser
                                                                                                                                                                                                                                                                                                           s requires a license agreement (S
an email to license@isb-sib.ch).
                                                                                                                                                                            TIGR00865;
                                                                                                                          Alternative
                                           236
               Conservative
                                                                                                                                                                                                                                                                        TVMSA1
                                                                                                                                                                                                                                                  1MAZ
                                            A
                                                                                                                                                                                  BH4;
                                                                                                                                                                                                                                            Bcl2.
                                                                                                                                                      вн2;
                                                                                                                                 BH4_1; 1.
BH4_2; 1.
                                                                                                                                                                    65; bcl-2; 1.
BCL2_FAMILY;
                                                                                                                                               BH3;
                                                                                                                                                              BH1;
                                                          .30
104
152
199
230
35
70
236
REYVHARLLRAGLSW-----SAPERASPAPG-
                                                                                                                                                                                                        Bcl2_reg
                                            26425
                    14.7%;
                                                                                                                                                                                                                     Bc12_BH.
Bc12_BH4.
                                                                                                                                                                                                                                    BCL2_family.
                                                                                                                          splicing;
                                            ¥.
                                                                                                                                                                                                                                                                                      JOINED
               27;
               Pred. No. 1.4
7; Mismatches
                                                               BH4.
BH3.
BH1.
BH2.
CTEAVAGE (BY CASPASES) (BY SIMILARITY).
PHOSPHORYLATION (BY PKC).
                            Score 130;
                                          GHK -> VGACLVE (IN AA85EF6B0766BE0A
                                                DAFVELYGPSMRPLFDFSWLSLKTLLSLALVGACITLGAYLGHK -> VGACLVE (IN ISOFORM BETA).
                                                                                                                                                                    <u>-</u>
                                                                                                                         Transmembrane; Mitochondrion;
                                                                                                                                                                                                                                                                                                                  (See http://www
                     .4e
                             DB
           4 1;
-05;
57;
                            Length
                                            CRC64;
              Indels
                                                                                                                                                                                                                                                                                                                 .isb-sib.
              92;
                                                                                                                                                                                                                                                                                                                 .ch/announce/
             Gaps
61
             5
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Institute

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В
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ъ
            This SW
between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Apoptosis
BCL2 OR BC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gallus gallus (Chicken).
Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Eukaryota; Metazoa; Chordata; Galliformes; Phasianidae; Phasianinae;
                                                                                                                              + + +
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cazals-Hatem D.L., Louie D.C., Tanaka S., Ree "Molecular cloning and DNA sequence analysis homologue of the Bel-2 oncoprotein."; Biochim. Biophys. Acta 1132:109-113(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=92379084; PubMed=1511008;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     adult and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eguchi Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE=92375724;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-APR-1993 (Rel. 25,
01-APR-1993 (Rel. 25,
15-JUN-2002 (Rel. 41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHICK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TISSUE=B-cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tablation and characterization of the chicken are variety of tissues including lymphoid and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=9031;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              200709;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BCL2_CHICK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1
                                                                            DOMAIN: The BH4 domain is required for antifor interaction with RAF-1 (By Similarity) SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH SIMILARITY: CHARAINS 1 BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                        Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1 (By similarity). SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum.
                                                                                                                                                                                                                                                                     TISSUE SPECIFICITY: In adult chicken expressed, in thymus, kidney, heart, ovary and brain, with the highest levels in thymus. In the embryo, highly levels expressed in all tissues the control of the co
                                                                                                                                                                                                                                                                                                                                                                                                                                                               release of cytochrome c from the mitochondria and/or the apoptosis-activating factor (APAF-1).
SUBUNIT: Forms homodimers, and heterodimers with BAX,
                                                                                                                                                                                                                                                  high levels in the bursa of Fabricius.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 permeability. Appears to function in a feedbac caspases. Inhibits caspase activity either by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FUNCTION:
       SWISS-PROT ent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Regulates cell death by controlling the mitochondrial membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FUNCTION: Suppresses apoptosis in a variety of cell systemiculating factor dependent lymphohematopoietic and neural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     variety of tissues including lymphoid
t and embryo.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HLHTWIQDNGGWDAFVELYGPSMRPLFDFSWLSLKTLLS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TLATWLRRRGGWTDVLKCV-VSTKPGFRSHWL-VATLCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FTARGREATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNR
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -GRLAEVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                regulator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ewert D.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Res.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          lymphoma;
                                  entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PubMed=1508712;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20:4187-4192(1992)

    Last sequence up
    Last annotation
    Bc1-2.

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    copyright.
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jnt. It is produced through
Bioinformatics and the EM
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      update)
                                                                                                                                                                                                                      for anti-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Reed J.C.;
sis of cDNA encoding chicken
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        feedback loop system with
                                                                                                                                                 (BH1)
(BH2)
                                                                                                                              (BH3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      219
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           bcl-2 gene: expression neuronal organs in
                                                                                                  DOMAIN.
DOMAIN.
                                                                                                                                                                            DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           preventing and/or by )
    jh a collaboration
EMBL outstation -
                                                                                                                                                                                                                                                                          tissues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BAD,
                                                                                                                                                                                                                           activity and
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           binding
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                                                                                                                                                                                                                                                                                                 spleen,
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      ARI_XENLA STANDARD; PRT; 228 AA. 091827; 01-NOV-1997 (Rel. 35, Created) 01-NOV-1997 (Rel. 35, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation update) Apoptosis regulator R1 (XR1) (Fragment). Xenopus laevis (African clawed frog). Xenopus laevis (African clawed frog). Eukaryota; Metazoa; Chordata; Craniata; Vertel Amphibia; Batrachia; Anura; Mesobatrachia; Pig
                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                      XENLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; D11382; BAA01978
EMBL; D11381; BAA01978
EMBL; Z11961; CAA78018
PIR; A37332; A37332.
PIR; S24390; S24390.
HSSP; Q07817; 1MAZ.
                                                                                                                                                                                                                                                                                                                                                                  CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                   DOMAIN
DOMAIN
  Xenopodinae;
                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                               DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIGRFAMS; TIGR00865; bcl-2; PROSITE; PS50062; BCL2_FAMII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SMART; SM00337; BCL; SMART; SM00265; BH4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                          DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROSITE;
                                                                                                                                               197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Apoptosis;
                                                                                                                                                                                      137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IPR002475; BCL2_family.

InterPro; IPR002712; Bcl2_BH.

InterPro; IPR003093; Bcl2_BH4.

InterPro; IPR004725; Bcl2_reg.
                                                                                                                                                                                                           77
                                                                                                                                                                                                                                                    61
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                                                                                                                                                                                                                               77
                                                                                                                                                                                                                                                                      17
                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                         EYVHARLLRAGLSWSAPERASPAP-----
                                                                                                                                             GNSMRPLFDFSWISLKTILSLVLVGACITLGAYL
                                                                                                                                                                                                                            AEGLRPAPPGVHLALRQAGDEFSRRYQRDFAQMSGQLHLTPFTAHGRFVAVVEELFRDGV 136
                                                                                                                                                                                                                                                                      KYIHYKLSQRGYDWAAGEDRPPVPPAPAPAAAAAAVAAAGASSHHRPEPPGSAAASEVPP
                                                                                                                                                                                    NWGRIVAFFEFGGVMCVESVNREMSPLVDNIATWMTEYLNRHLHNWIQDNGGWDAFVELY 196
                                                                                                                                                                                                       TWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCV 136
                                                                                                                                                                                                                                                                                                              . Similarity 35; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PS50063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PS01260;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PS01080; BH1;
PS01258; BH2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PS01259;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Transmembrane;
                                                                                                                                                                                                                                                                                                                                                       233 AA;
                                                                                                                                                                                                                                                                                                                                                                121
139
                                                                                                                                                                                                                                                                                                                                                                                               10
87
130
181
208
64
67
                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; CAA78018.1; -. A37332.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BAA01978.1; -.
BAA01978.1; JOINED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BCL2_FAMILY; 1.
                                                                                                                                                                                                                                                                                                                                                                   121
139
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196
228
64
82
                                                                                                                                                                                                                                                                                                                                                                                                                                                   30
101
                                                                                                                                                                                                                                                                                                                                                       25687 MW;
                                                                                                                                                                                                                                                 13.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mitochondrion
                                                                                                                                                                LVATLCSFGRFL 159
                                                                                                                                                                                                                                                                                                              26;
                                                                                                                                                                                                                                                                                                           Pred. No. v.v.
5; Mismatches
                                                                                                                                                                                                                                                                                                                       Score 115.5;
Pred. No. 0.
                                                                                                                                                                                                                                                                                                                                                                o H
                                                                                                                                                                                                                                                                                                                                                                                                GSAAASEVPPAEGLRP
                                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL.
E -> S (IN REF.
                                                                                                                                                                                                                                                                                                                                                                                     (IN REF.
                  Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                -> T (IN REF. 2).
-> V (IN REF. 2).
                                                                                                                                                                                                                                                                                                                                                       5252555ACB6E4C3D
                                                 update)
                                                                                                                                              230
                                                                                                                                                                                                                                                                                                             ).00035;
nes 62;
         Pipoidea;
                                                                                                                                                                                                                                                                                                                                 DB 1;
                                                                                                                                                                                                                                                                                                                                                                                            2).
                                                                                                                                                                                                                                                                                                                                                       CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                ARLLLVRCPRLRGCA
                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                 Length
         Pipidae;
                                                                                                                                                                                                                                                                                                                                  233;
                                                                                                                                                                                                                                                                                                             91;
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                                                                                                                BCLX_CHICK
                                                                                                                             RESULT 8
                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                   BCLX_CHICK STANDARD: PRT; 2 007816; Q98908; 01-FEB-1995 (Rel. 31, Created) 01-NOV-1997 (Rel. 35, Last sequence up 15-JUN-2002 (Rel. 41, Last annotation Apoptosis regulator Bcl-X.

BCL2L1 OR BCLX OR BCL-X.
                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Cloning, characterization and expression of two Xenopus bc1-2-like dell-survival genes.";
Gene 158:171-179 (1995)
-i- FUNCTION: COULD BE THE HOMOLOG OF MAMMALIAN BCL-W.
             Gallus gallus (Chicken)
                                                                                                                                                                                                                                                                                                                                                                                                                                              PROSITE; PS01080; BH1; PROSITE; PS01258; BH2; PROSITE; PS50062; BCL2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SMART; SM00337; BCL; 1.
SMART; SM00265; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       use by non-profit institutions as long modified and this statement is not removed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -i- SUBCELLULAR LOCATION: Membrane-bound (Potential).
-i- DEVELOPMENTAL STAGE: DEVELOPMENTAL REGULATION ONLY OCCURS IN THE BRAIN OF MID-METAMORPHOSIC TO POST-METAMORPHOSIC TADPOLES AND ADULTS, WHERE AN INCREASE OF SEVERAL FOLD HAS BEEN OBSERVED.
-i- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
-i- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                             DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                         DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                        Apoptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; X82462; CAA57845.1; HSSP; Q07817; 1MAZ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cruz-Reyes J., Tata
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=95331613; PubMed=7607538;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=8355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 [nterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                 149 EMSPLLPRIQDWMVTYLETNLRDWIQSNGGWNGFL
                                                                                                                                                                                          99
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  European Bioinformatics Institute. The by non-profit institutions as long
                                                                                                                                                                                         AQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVL
                                                                                                                                                                                                                                                                   DKYLTEQGWMAQSDLGSRALVEDLVRYKLCQRSL---VPEPSGAASCALHSAMRAAGDEF
                                                                                                                                                                                                                                                                                            DRWPTDKELVAQ----AKALGREYVHARLLRAGLSWSAPERASPA-----
                                                                                                                                                                                                                EERFRQAFSEISTQIHVTPGTAYARFAEVAGSLFQGGVNWGRIVAFFVFGAALCAESVNK
                                                                                                                                                                                                                                                                                                                   l Similarity
33; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IPR002475; BCL2_family. IPR000712; Bcl2_BH. IPR003093; Bcl2_BH4.
                                                                                                                                                                                                                                                                                                                                                                    207
228 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                  Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                                             120
171
                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       вн1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 BCL2
                                                                                                                                                                                                                                                                                                                                                                    186 F
227 F
25068 MW;
                                                                                                                                                                                                                                                                                                                                                                                                         139
                                                                                                                                                                                                                                                                                                                                 12.7%;
21.3%;
                                                                                                                                                                                                                                         --PG---GRLAEVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQ
                                                               Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                              FAMILY;
                                                                                                                                                                                                                                                                                                                     27;
                                                                                                                                                                                                                                                                                                                  Score 112.5;
Pred. No. 0.00
27; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                BH1.
BH2.
POTENTIAL
 Craniata; Vertebrata;
                                                                                                                                                                                                                                                                                                                                                                    C499D449A585F8A9
                                                                                                    229
                                                  update)
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                                                                                                                                                                 183
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                                                                                                                                                                                                                                                                                                                                           DB 1;
                                                                                                                                                                                                                                                                                                                  52;
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Euteleostomi;
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                                                                                                                                                                                                                                                                                                                   43;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            collaboration
                                                                                                                                                                                                                                                                                                                 Gaps
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PROSITE; PS01080; BCL2_FAMILY; 1
PROSITE; PS01080; BH1; 1.
PROSITE; PS011080; BH2; 1.
PROSITE; PS01258; BH2; 1.
PROSITE; PS01259; BH3; 1.
PROSITE; PS01260; BH4_1; 1.
PROSITE; PS01063; BH4_2; 1.
PROSITE; PS00063; BH4_2; 1.
                                                                          TRANSMEM VARSPLIC
                                                                                                                                                                                                                                   Apoptosis;
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Boise L.H., Gonzalez-Garcia M., Postema C.E., Din
Turka L.A., Mao X., Nunez G., Thompson C.B.;
"bcl-x, a bcl-2-related gene that functions as a
of apoptotic cell death.";
Cell 74:597-608(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the European Bioinformatics Institute. There are no rest use by non-profit institutions as long as its content modified and this statement is not removed. Usage by an entitles requires a license agreement (See http://www.isborsend an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Vilagrasa X., Mezquita C., Mezquit
"Differential expression of bcl-2
spermatogenesis.",
Mol. Reprod. Dev. 47:26-29(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN-Hubbard White Mountain; TJ MEDLINE-97264485; PubMed-9110311; Vilagrasa X., Mezquita C., Mezqui
                SEQUENCE
                                                                                                                                                                        DOMAIN
                                                                                                                                                                                                      DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SMART; SM00337;
SMART; SM00265;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A. (SHORT FORM). MEDLINE-93364977; PubMed-8358789;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            I- DOMAIN: BH4 DOMAIN SEEMS TO BE INVOLVED IN FUNCTION. INTACT BH1 AND BH2 DOMAINS ARE R APOPTOTIC ACTIVITY (BY SIMILARITY).
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (B :- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (B :- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (B :- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (B :- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FUNCTION: DOMINANT REGULATOR OF APOPTOTIC CELL DEATH.
FORM DISPLAYS CELL DEATH REPRESSOR ACTIVITY, WHEREAS 'ISOFORM PROMOTES APOPTOSIS (BY SIMILARITY).
SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PER:
ENVELOPE (BY SIMILARITY).
ALTERNATIVE PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN )
SHORT FORM; ARE PRODUCED BY ALTERNATIVE SPLICING.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2; U26645; AAB07677.1;
A47537; A47537.
P; P53563; 1AF3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEVELOPMENT.

DOMAIN: BH4 DOMAIN SEEMS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SWISS-PROT entry is copyright. It is produced sen the Swiss Institute of Bioinformatics and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Z23110; CAA80657.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IPR003093;
IPR004725;
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IPR000712;
                                                                                                                                                                                                                                                                Transmembrane;
                229
                                                                          125
125
176
206
185
                Ã,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BCL;
                                                                             24
96
144
191
223
229
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Bcl2_BH.
Bcl2_BH4.
Bcl2_reg.
                25733
                M.
                                                                                                                                                                                                                                                                   Alternative
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BH3.
BH1.
BH2.
BH2.
CONTENTIAL.
CONTENTIAL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EXPRESSION
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and
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                                                                                                                                                                                                                                                                   splicing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             noved. Usage by and for (See http://www.isb-sib.
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(BH3)
(BH4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (BH1)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IN THE ANTI-APOPTOTIC REQUIRED FOR ANTI-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANS
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L outstation -
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RESULT 9
BCLX_MOUSE
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Best Local S
Matches 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BCLX_MOUSE STANDARD; PRT; 233 AA

64373; Q60657; Q60658; Q61338;

Q61-NOV-1997 (Rel. 35, Created)

01-NOV-1997 (Rel. 35, Last sequence update)

15-JUN-2002 (Rel. 41, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa;
Mammalia; Eutheria;
                                            J. Immunol.
                                                                                        MEDLINE=97289584; PubMed=9144489; Grillot D.A., Gonzalez-Garcia M., Ohta S., Seldin M.F., Nunez G.;
                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                              rang X.-F., Weber G.F., Cantor H.;
"A novel Bcl-x isoform connected to
mapoptosis in T cells.";
Immunity 7:629-639(1997).
                                                                                                                                                                                                STRAIN=C57BL/6 X CBA;
MEDLINE=98051053; Publ
                                                                                                                                                                                                                                                                                MEDLINE=95052604; PubMed=7963517;
Fang W., Rivard J.J., Mueller D.L.,
                                                                                                                                                                                                                                                                                                       TISSUE=Pre-B cell;
                                                                                                                                                                                                                                                                                                                                       Thompson C.B., Nunez G.;
"bcl-XL is the major bcl-x mRNA form
development and its product localizes
Development 120:3033-3042(1994).
                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN=C57BL/6; T:
MEDLINE=95331139;
                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A. (ISOFORMS X(L)
                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN=2A4B;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mus musculus (Mouse).
                                                                      "Genomic organization, promoter region
                                                                                                                                                                                                                        SEQUENCE FROM
                                                                                                                                                                                                                                                                     "Cloning and molecular characterization
                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A. (ISOFORMS X(L);
                                                                                                                                                                                                                                                                                                                                                                                      Gonzalez-Garcia M., Perez-Ballestero
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Kamesaki H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BCL2L1 OR BCL2L OR BCLX.
                                                                   ocalization
                                                                                                                                                                                                                                                         ymphocytes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            178
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4
         caspases (blocking to it and
                                         FUNCTION: Potent inhibitor of cell death.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IQENGGW
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SFEQVVNELFHDGVNWGRIVAFFSFGGALCVESVDKEMRVLVGRIVSWMTTYLTDHLDPW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -LAEVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity 24.4
31; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                              H., Michaud
(MAR-1995)
                                                       n of the mouse bcl-x 158:4750-4757(1997).
                                                                                                                                                                                                                                               153:4388-4398(1994).
(By similarity). Appears to regulate cell death by the volatage-dependent anion channnel (VDAC) by bindid preventing the release of the caspase activator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            184
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                                                                                                                                                                                                                        N.A.
                                                                                                                                                                                                                                                                                                                                                                                                TISSUE=Brain;
9; PubMed=7607090;
                                                                                                                                                                                                PubMed=9390687;
                                                                                                                                                                                                                       (ISOFORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                             G.Y., 7
to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                             Takatsu K., Okuma I
e EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -- VRQALRDAGDEFELRYRRAFSDLTSQLHITPGTAYQ
                                                                                                                                                                                                                        X(BETA)).
                                                                                                                                                                                                                                                                                                                                                      localizes
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                 gene.
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                                                                                                                                                                                                                                                                                                                                                                                                                        AND
                                                                                                     Ekhterae
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                                                                                                                                                                           the
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                                                                             analysis,
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                                                                                                                                                                                                                                                                      of mouse bcl-x in
                                                                                                                                                                                                                                                                                                                 AND X(DELTA-TM))
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                                                                                                                                                                           cell receptor regulates
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                                                                                                                                                                                                                                                                                 T.W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                             M.;
J databases.
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                                                                                                      Duan
                                                                               and
                                                                                                                                                                                                                                                                                                                                                                                    Duan L., Boise L.H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
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                                                                               chromosome
                                                                                                                                                                                                                                                                                                                                                      murine
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                                                                                                     Inohara
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9;
                    by binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                            of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         177
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InterPro; IPR002475; BC InterPro; IPR000712; BC InterPro; IPR003093; BC InterPro; IPR004725; BC InterPro; IPR004725; BC IPfam; PF00452; BC1-2; 1 Pfam; PF00180; BH4; 1.
                                                                                                                                                                                                                                 SMART; SM00337; BCL; 1
SMART; SM00265; BH4; 1
TIGRFAMS; TIGR00865; L
PROSITE; PS50062; BCL;
                                                                                                                                                                     PROSITE; PROSITE;
                                                                                                                                                                                                  PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                          Apoptosis;
                                                                                                                                                       PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                         HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL;
                                                             TRANSMEM
                                                                              DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SPLICING.

TISSUE SPECIFICITY: WIDELY EXPRESSED, WITH HIGHEST BRAIN, THYMUS, BONE MARROW, AND KIDNEY. BCL-X(L) A TWN EXPRESSION IS ENHANCED IN B AND T LYMPHOCYTES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SIMIlarity). The cleaved protein, lacking the BH4 dom apoptotic activity (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.

SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            isoform promotes apoptosis.
SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and Bcl-2 (By SIBUNIT: Bcl-x(L) forms heterodimers with BAX does not seem to be similarity). Heterodimerization with BAX does not seem to be required for anti-apoptotic activity (By similarity).
SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND BRRINUCLEAR SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND BRRINUCLEAR ENVELOPE FOR BCL-X(L). CYTOPLASMIC FOR BCL-X(DELTA-TM).
ALTERNATIVE PRODUCTS: 4 ISOFORMS; BCX-X(L) (SHOWN HERE), BCL-X(S) BCL-X(BETA) AND BCL-X(DELTA-TM); ARE PRODUCED BY ALTERNATIVE CRITICIAN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POSTNATAL TISSUES, WHEREAS BCL-X(L) IS PREDOMINANTIVE POSTNATAL TISSUES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PTM: Protecolytically cleaved by caspases during apoptosis similarity). The cleaved protein, lacking the BH4 domain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DOMAIN: The BH4 domain is required for anti-apoptotic act:
The BH1 and BH2 domains are required for both heterodimer:
with other Bcl2 family members and for repression of cell
                                                                                                                                                                                                                                                                                                                                                                                          MGI:88139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    U10101;
U10100;
U51279;
                                                                                                                                                                                                                                                                                                                                                                                                                     U78031;
U78030;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 L35048;
U10102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                X83574;
L35049;
                                                                                                                                                                                                                                                                                                                                                                                                          P53563;
                                                                                                                                                    3; PS50062; BCL2_FAMILY; 1.

5; PS01080; BH1; 1.

5; PS01258; BH2; 1.

6; PS01259; BH3; 1.

7; PS01259; BH3; 1.

8; PS01260; BH4_1; 1.

8; PS50063; BH4_2; 1.
                                                                                                                                                                                                                                                                                                                          IPR002475; BCL2_family.
IPR000712; Bcl2_BH.
IPR003093; Bcl2_BH4.
IPR004725; Bcl2_reg.
                              86
129
180
180
210
126
189
                                                                                                                                        .tochondrion;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CAA58557.1; -. AAA51039.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAA51040.1; -.
AAA82174.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                     AAB96881.1;
AAB96881.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAA82172.1;
AAC53460.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAA82173.1;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            from the mitochondrial membrane.
                                100
148
195
226
188
233
                                                                                                                                                                                                                                                 bcl-2; 1
                                                                                                                                                                                                                                                                                                                                                                                                                       JOINED
                                                                                                                                        Alternative
           POTENTIAL.

MISSING (IN ISOFORM BCL-X(S)).

DTFVDLYGNNAAAESERGQEERNRWFLTGMTVAGVVLLGSL
FSRK -> VRTTPLVCPPLACVSLLCEHP (IN ISOFORM
BCL-X(BETA)).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        required for a
ers and
                                                                                                                                       splicing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          or anti-apoptotic activity. for both heterodimerization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Y. BCL-X(L) AND BCL-X(DELTA-
                                                                                                                                        Transmembrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     THAT HAVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bc1-x(S)
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FOUND IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             death.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BEEN
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RESULT 10
BCLX_RAT
Ωy
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                        ovary: equine chorionic gonadotropin-mediated inhibition of granucell apoptosis is associated with decreased bax and constitutive bcl-2 and bcl-xlong messenger ribonucleic acid levels."; Endocrinology 136:232-241(1995)
                                                                                                                                                                                                                                                                                                                                                                                                  TISSUE-Brain;
Wesselingh S.L., Davi
Submitted (JUN-1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BCLX_RAT STANDARD; PRT; 23 AA. P53563; Q62678; P70614; P70613; Q62836; Q6408 O1-CCT-1996 (Rel. 34, Created) C1-NOV-1997 (Rel. 35, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation update) Apoptosis regulator Bc1-x.

BCL2L1 OR BLC2L OR BCLX.
                                                         the Bcl-2 protein family.";
J. Biol. Chem. 272:27886-27892(1997).
-!- FUNCTION: Potent inhibitor of cel
                                                                                                                                     X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS). MEDLINE=98010630; PubMed=9346936;
                                                                                                                                                                                                                        Tilly J.L., Tilly K.I., Kenton M.L., Johnson A.L "Expression of members of the bcl-2 gene family
                                                                                                                                                                                                                                                 STRAIN-Sprague-Dawley; TISSUE-Ovary; MEDLINE-95129487; PubMed-7828536;
                                                                                                                                                                                                                                                                                                                         MEDLINE-96278736; PubMed-8662675; Shiraiwa N., Inohara N., Okada S., "An additional form of rat Bcl-x,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VARSPLIC
                                                                                                                       Aritomi M., Kunishima N.,
                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A. (ISOFORMS X(L) AND X(S)).
                                                                                                                                                                                                                                                                                                               unspliced RNA,
                                                                                                                                                                                                                                                                                                                                                                 TISSUE-Thymus
                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Michaelidis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TISSUE=Brain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Rattus norvegicus (Rat)
                                                                                                "Crystal structure of rat
                                                                                                             Morikawa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            126
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
                                                                                                                                                                                                                                                                                                  Biol.
       FUNCTION: Potent inhibitor of cell death. Inhibits activation of caspases (By similarity). Appears to regulate cell death by blocking the volatage-dependent anion channnel (VDAC) by binding to it and preventing the release of the caspase activator, cytochrome c, from the mitochondrial membrane. The Bcl-x(S) and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                is T.M.;
(DEC-1994)
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                                                                                                                                                                                                                                                                                                                                                                                                                                         N.A.
                                                                                                                                                                                                                                                                                                 promotes apoptosis in promyeloid 271:13258-13265(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AA;
                                                                                                                                                                                                                                                                                                                                                                                                                David
                                                                                                                                                                                                                                                                                                                                                                           (ISOFORMS
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to the E
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                                                                                               Bcl-xL. Implications for the function
                                                                                                                       Inohara N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15;
                                                                                                                                                                                                                                                                                                                                                                                                   EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 104; DE
Pred. No. 0.00
L5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                           X(L)
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                                                                                                                                                                                                                                                                                                                                                                                                                   Choi
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                                                                                                                                                                                                                                                                                                                          , Yuzaki M.,
Bcl-xbeta,
                                                                                                                       Ishibashi Y.,
                                                                                                                                                                                                                                                                                                                                                                             X(BETA))
                                                                                                                                                                                                                                                                                                                                                                                                                   Veliuona
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                                                                                                                                                                                                                                      A.L.;
                                                                                                                                                                                                                                                                                                                          , Shoji S.-I., generated by
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InterPro; IPR003093; Bc
InterPro; IPR004725; Bc
Pfam; PF00452; Bc1-2; 1
Pfam; PF02180; BH4; 1.
SMART; SM00337; BCL; 1.
SMART; SM00265; BH4; 1.
                 CONFLICT
CONFLICT
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                                                                                                                                CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PROSITE; PS50062; BCL2_FAMILY; PROSITE; PS01080; BH1; 1.
PROSITE; PS01258; BH2; 1.
PROSITE; PS01259; BH3; 1.
PROSITE; PS01259; BH3; 1.
                                                                                                                                                                                                                                                                  VARSPLIC
VARSPLIC
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EMBL;
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SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (-: SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (-: SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (-: SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (-: SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (-: SIMILARITY: BELONGS TO THE BCL-2 FAMILY (-: SIMILARITY: BELONGS TO THE BCL-3 FAMILY (-: SIMILARITY: BC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on it use by non-profit institutions as long as its content is in no was a second of the second of t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR002475; InterPro; IPR000712;
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TISSUE SPECIFICITY: EXPRESSED IN MOST TISSUES: BCL-X(BETA)
SPECIFICALLY EXPRESSED IN CEREBELLUM, HEART, AND TYMUS. II
OVARY, THE PREDOMINANT FORM IS BCL-X(L), WITH A SMALL BUT
DETECTABLE LEYEL OF BCL-X(S).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and similarity). Heterodimerization with BAX does not seem required for anti-apoptotic activity (By similarity). SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN: The BH4 domain is required for anti-apoptotic activity. The BH1 and BH2 domains are required for both heterodimerization with other Bcl2 family members and for repression of cell death.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            X82537; CAA57886.1;

X82537; CAA57887.1;

U10579; AAA19257.1;

U72350; AAB17353.1;

U72349; AAB17352.1;

U72349; AAB77586.1;

U72349; AAC607001.1;

U74963; AAC607001.1;

U74963; AAC607001.1;

U74963; AAC607001.1;

U74963; AAC607001.1;
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ALTERNATIVE PRODUCTS: 3 I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              s requires a license agreement (See http://www.isb-sib.ch/announce/
an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PS01260;
PS50063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and this statement
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                      12
64
81
119
143
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129
180
180
210
126
189
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BH4_2; 1
                      12
64
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119
144
199
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100
148
195
226
188
233
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Bcl2_BH4
Bcl2_reg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BCL2_family.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alternative
           MISSING (IN ISOFORM BCL-X(S)).
DIFVDLYGNNAAABSRKGQERENKWFLTGMTVAGVVLLGSL
FSRK -> VRTTPLVGPFLVCLSSVEIFNCFEWSPGMVVED
IDVSGDIPGLL (IN ISOFORM BCL-X(BETA)).
R -> Q (IN REF. 1).
F -> S (IN REF. 2).
A -> E (IN REF. 2).
A -> L (IN REF. 4).
A -> V (IN REF. 4).
A -> V (IN REF. 4).
A -> T (IN REF. 4).
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                                                                                                                                                                                                                                                                                                                         BH1.
BH1.
BH2.
POTENTIAL.
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(IN T
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              splicing; Transmembrane;
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(BH2)
(BH3)
(BH4)
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during apoptosis. The
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seem to be
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            THE
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RESULT
BCLX_P1
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                               "Quantification of controlling "; short-term hibernating myocardium.";
J. Mol. Cell. Cardiol. 31:147-158(1999).

-!- FUNCTION: Potent inhibitor of cell death. Inhibits activation caspases (By similarity). Appears to regulate cell death by blocking the volatage-dependent anion channnel (VDAC) by binding to it and preventing the release of the caspase activator, cytochrome c, from the mitochondrial membrane.

-!- SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and Bcl-2 (similarity). Heterodimerization with BAX does not seem to be required for anti-apoptotic activity (By similarity).
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_PIG
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SEQUENCE
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077737;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
MEDLINB=99171363; PubMed=10072723;
Bartling B., Hoffmann J., Holtz J.,
Bartling B., Hoffmann Moprotective
"Quantification of cardioprotective
"Quantification myocardium.";
                                                                    EMBL;
                                                                                                                                                        the
use
                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produbetween the Swiss Institute of Bioinformatics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sus scrofa (Pig).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15-JUL-1999 (Rel. 38, Crea
15-JUL-1999 (Rel. 38, Last
15-JUN-2002 (Rel. 41, Last
Apoptosis regulator Bcl-x.
BCL2L1 OR BLC2L OR BCLX.
                                                                                                             or send
                                                                                                                           entities
                                                                                                                                        modified
                                                                                                                                                                                                                                                         - - -
           InterPro;
                            InterPro; IPR003093;
                                        InterPro; IPR002475; InterPro; IPR000712;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=9823;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      66 EVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125 : | | | | : : : : | | :: 125
                                                                                                                                                                                                                          with other Bcl2 family members and for repressio PTM: Proteolytically cleaved by caspases during similarity). The cleaved protein, lacking the BH apoptotic activity (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DO SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DO SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DO SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DO SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DO SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                   ween the Swiss Institute of Bioinf
European Bioinformatics Institute
                                                                                                                                                                                                                                                                                                                                                        DOMAIN: The BH4 domain is required for anti-apoptotic activity. The BH1 and BH2 domains are required for both heterodimerization
                                                                                                                                                                                                                                                                                                                                                                                      SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES ENVELOPE (BY SIMILARITY).
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                                                                  AJ001203;
Q07817; 1N
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                l Similarity
17; Conser
                                                                                                             an email to license@isb-sib.ch).
                                                                                                                                        non-profit institutions as long and this statement is not removed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            129
             IPR004725;
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233
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                                                                     1MAZ
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                   CAA04597.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     26158 MW;
          BCL2_family.
Bcl2_BH.
Bcl2_BH4.
Bcl2_reg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11.8%;
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Last
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sequence update) annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 104; DB 1;
Pred. No. 0.0045;
5; Mismatches 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A ->
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2B62B6C63864BC8F
                                                                                                                                                       as long
                                                                                                                                                                                                                                                                                                                                              and for repression of cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                 It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Schulz R., Heusch G., Darm gene expression in porcine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     update)
                                                                                                                            (See http://www.isb-sib.ch/announce/
                                                                                                                                                     There are no rest
                                                                                                                                        Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 233;
                                                                                                                                                                                     and the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CRC64;
                                                                                                                                                                                                                                                       DOMAIN.
DOMAIN.
                                                                                                                                                                                                                                             DOMAIN
                                                                                                                                                                                                                                                                                                                   BH4
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                                                                                                                                        bу
                                                                                                                                                                                                                                                                                                                               apoptosis
                                                                                                                                                                    restrictions
                                                                                                                                                                                                                                                                                                                   domain,
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                                                                                                                                                                                     EMBL outstation
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binding
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                                                                                                                                                                                                                                                                                                                                              death.
                                                                                                                                          ons on its in no way commercial
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PF02180;

BH4;

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RESULT 12
BCLX_HUMAN
ID MEDLY_H
AC Q07817
DT 01-FEB
DT 01-FEB
DT 01-FEB
DT 15-JUN
DE APOPTO
GN HOLDZI
OS HOMO S
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RA HO1se
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Best Local S
Matches 17
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PROSITE;
PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PROSITE;
                  Nature
[5]
                                                                                                                                                                                                                                                               Sedlak T.W.,
                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A. (ISOFORM BETA). Inohara N., Ohta S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                             Boise L.H., Gonzalez-García M., Postema C.E.
Turka L.A., Mao X., Nunez G., Thompson C.B.,
"bcl-x, a bcl-z-related gene that functions
of apoptotic cell death.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A. (ISOFORMS X(L) MEDLINE 93364977; Pubmed 8358789;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BCLX_HUMAN STANDARD; PRT; 207817; Q92976; 01-FEB-1995 (Rel. 31, Created) 01-FEB-1995 (Rel. 31, Last sequence up 15-JUN-2002 (Rel. 41, Last annotation 15-JUN-2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SMART; SM00337; BCL; 1.
SMART; SM00265; BH4; 1.
TIGRFAMS; TIGR00865; bcl-2;
                                                                                                                                                                                                                                                                                  MUTAGENESIS OF GLY-138, AND HETER MEDLINE=95372373; PubMed=7644501;
                                                                                                                                                                                                                                                                                                                                              Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Apoptosis regulator Bcl-x.
BCL2L1 OR BCL2L OR BCLX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DOMAIN
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                                                                                                                       MEDLINE=96170038;
                                                                                                                                          MUTAGENESIS
                                                                                                                                                                                 Proc. Natl.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=9606
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  STRUCTURE
                                       "Bax-independent inhibition of apoptosis by Bcl-XL.";
Nature 379:554-556(1996).
                                                                             Cheng E.H.-Y.,
Korsmeyer S.J.;
                                                                                                                                                                                                                       "Multiple Bc1-2 family members demonstrate selective dimerizations
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 126
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                                                                                                                                                                                                      Bax."
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QVLNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIATWMATYLNDHLEPWIQE 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125
                                                                                                                                                                                                                                                                                                                                                                                                                            74:597-608(1993)
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17; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PS01258;
PS01259;
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  ВΥ
                                                                                                                                                                                                                                                                                                                                              (OCT-1996) to
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210
233 i
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129
                                                                                                                                        OF BH1 AND BH2 DOMAINS.
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  NMR
                                                                                                  Levine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AA;
  OF.
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BH4_2; 1.
                                                                                                                       PubMed=8596636;
                                                                                                                                                                                 Sci.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BCL2_FAMILY; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     24
100
148
195
226
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                                                                                                В.,
                                                                                                                                                                                 U.S.A.
                                                                                                                                                                                                                                                                                                       AND HETERODIMERIZATION
                                                                                                                                                                                                                                                                                                                                          the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MW;
                                                                                                  Boise
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Transmembrane
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Pred. No. 0.00
15; Mismatches
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BH1.
BH2.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                               92:7834-7838(1995)
                                                                                                                                                                                                                                                             Ε
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Postema C.E.,
                                                                                                  L.H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AND X(S)).
                                                                                                                                                                                                                                                           Wang K., Boise L.H., Thompson C.B.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       233
                                                                                                Thompson C.B., Hardwick
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .0057
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B
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                 as a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ding L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 233;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 dominant regulator
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lindsten
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MIM; Genew;

1LXL; 21-APR-97. 1MAZ; 21-APR-97.

HGNC:992; BCL2L1

1BXL;

29-OCT-97

InterPro; InterPro; InterPro;

IPR003093; IPR004725; IPR002475; IPR000712;

Bcl2_BH4. Bcl2_reg.

BC12_BH

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EMBL; Z23116;
EMBL; Z23115;
EMBL; U72398;
                                                                                                                                                                                                                                                                                                                            -!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
-!- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                 modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                    This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Proc. Natl. Acad. Sci. U.S.A. 95:554-559(1998).

-!- FUNCTION: Potent inhibitor of cell death. Inhibits activation of caspases (By similarity). Argulate cell death by blocking the volatage-dependent anion channel (VDC) by binding to it and preventing the release of the caspase activator, cytochrome c, from the mitochondrial membrane. The Bcl-x(S)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sattler M., Liang H., Nettesheim D., Meadows R.P., Har Eberstadt M., Yoon H.S., Shuker S.B., Chang B.S., Minn Thompson C.B., Fesik S.W.; "Structure of Bcl-xL-Bak peptide complex: recognition regulators of apoptosis."; Science 275:983-986(1997).
                                                                                                                                                                                                      or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                   the European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                              +
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Muchmore S.W., Sattler M.,
Yoon H.S., Nettesheim D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A-KAY CRYSTALLOGRAPHY (2.2 ANGSTROMS), MEDLINE=96256675; PubMed=8692274;
                                                                                                                                                                                                                                                                                   between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Takahashi A., Kastan M.B., Griffin D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=98118550; PubMed=9435230;
Clem R.J., Cheng E.H.-Y., Karp_C.L., Kirsch D.G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLEAVAGE BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "X-ray and NMR structure of human Bcl-xL, an inhibitor of programmed cell death.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ng S.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=97172562; PubMed=9020082;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hardwick J.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Nature 381:335-341(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Modulation of cell death bx Bcl-xL through caspase interaction.";
                                                                                                                                                                                                                                                                                                                                                                                                                                        AND BCL-X(BETA); ARE PRODUCED BY ALTERNATIVE SPLICING.

TISSUE SPECIFICITY: BCL-X(S) IS EXPRESSED AT HIGH LEVELS IN CELLS

THAT UNDERGO A HIGH RATE OF TUNOVER, SUCH AS DEVELOPING

LYMPHOCYTES. IN CONTRAST, BCL-X(L) IS FOUND IN TISSUES CONTAINING

LONG-LIVED POSTMITOTIC CELLS, SUCH AS ADULT BRAIN.

DOMAIN: The BH4 domain is required for anti-apoptotic activity.

The BH1 and BH2 domain are required for both heterodimerization

with other Bcl2 family members and for repression of cell death.

PTM: Proteolytically cleaved by caspases during apoptosis. The
                                                                                                                                                                                                                                                                                                                                                                                                                         with other Bcl2 famil
PTM: Proteolytically
cleaved protein, lack
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               apoptotic activity.

SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR ENVELOPE (BY SIMILARITY).

ALTERNATIVE PRODUCTS: 3 ISSECRMS; BCL-X(L) (SHOWN HERE), BCL-X(L)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                isoform promotes apoptosis.
SUBUNIT: Bcl-x(L) forms het
                                                                                                                                                                                                                                                                                                                                                                                                             activity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Heterodimerization with BAX does
                                                                                                                                                                                                                                                                                  SWISS-PROT entry is copyright. It is produced sen the Swiss Institute of Bioinformatics and
                                                                                                                                                                                                                                                    non-profit institutions as long
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Fesik
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CASPASES,
                                                                                                                                       ; CAA80662.1;
; CAA80661.1;
; AAB17354.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S.W.;
                                                                                                                                                                                                                                                                                                                                                                                                                            lacking
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AND MUTAGENESIS
                                                                                                                                          22.1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Liang H., Meadows R.
Chang B.S., Thompson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 heterodimers with BAX does not seem
                                                                                                                                                                                                                                                                                                                                                                                                                            the BH4 domain,
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                                                                                                                                                                                                                                                                    There are no
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Earnshaw W.C., Ve
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on C.B
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., Wong
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BAK and Bcl-2.
                                                                                                                                                                                                                                                                                               through
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BAXB_HUMAN
                                                                                                                                                                                                                                                                                         Matches
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Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SMART; SM00337; BCL; 1
SMART; SM00265; BH4; 1
TIGREPAMS; TIGRO0865; b BCL2
PROSITE; PS50062; BCL2
PROSITE; PS01080; BH1;
PROSITE; PS01088; BH2;
PROSITE; PS01259; BH3;
                                                                                                                                                                                                                                                                                                                            MUTAGEN
CONFLICT
SEQUENCE
       MEDLINE=93364978; PubMed=8358790;
Oltvai Z.N., Milliman C.L., Korsmeyer
"Bcl-2 heterodimerizes in vivo with a
accelerates
                                      TISSUE-B-cell;
                                                                                                                                                      BAXB_HUMAN
Q07814;
                                                                                                                                                                                                                                                                                                                                                                           MUTAGEN
MUTAGEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRANSMEM
SITE
                                             SEQUENCE FROM N.A.
                                                                          Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                         01-FEB-1995 (Rel. 31,
01-FEB-1995 (Rel. 31,
15-JUN-2002 (Rel. 41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1.
                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                               MUTAGEN
                                                                                                                                                                                                                                                                                                                                                                                                       MUTAGEN
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                                                                 NCBI_TaxID=9606;
                                                                                                                 Apoptosis
                                                                                                                                                                                                                                                                                                                                                                   MUTAGEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DOMAIN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Apoptosis; Mitochondrion;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE;
                                                                                                                                                                                                                                  126
                                                                                                                                                                                                                                                   125
                                                                                                                                                                                                               185 NGGW 188
                                                                                                                                                                                                                                                                     66
                                                                                                                                                                                                                                  RGGW
                                                                                                                                                                                                                                                   QVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIAAWMATYLNDHLEPWIQE 184
                                                                                                                                                                                                                                                                     EVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125
                                                                                                                                                                                                                                                                                        17; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PS01260;
PS50063;
                                                                                                                 regulator
                                                                                                                                                                                                                                                                                                                              233
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129
180
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210
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126
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                                                                                            (Human)
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                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; BH4_1; 1.

3; BH4_2; 1.

3; BH4_2; 1.
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70
26049
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148
156
176
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137
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100
148
195
226
61
188
233
                                                                          Chordata;
Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                         140

    Created)
    Last sequence update)
    Last annotation update)
    BAX, cytoplasmic isoform

                                                                                                                                                                                                                                                                                                                                                                   189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        bcl-2;
                                                                                                                                                                                                                                                                                                11.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cell
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                                                                                                                                                                                                                                                                                        15;
                                                                                                                                                                                                                                                                                                                           G-A: NO HETERODIMER
G-SE: NO HETERODIMER
D-A: NO EFECT ON CA
D-A: NO EFECT ON CA
D-A: NO EFECT ON CA
MD-SGA: REDUCES ANTI
BY ABOUT HALF.
D-A: NO EFECT ON CA
G -> A (IN REF. 1; C
G -> A (IN REF. 1; C
 death
                                                                                                                                                                                                                                                                                                                                                                                                               CASPASE-3.
FRD->VRA: NO HE'
VNW->AIL: LOSS (
ACTIVITY.
ACTIVITY.
                                                                                                                                                                                                                                                                                      Score 102; DB 1;
Pred. No. 0.0071;
5; Mismatches 32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLEAVAGE BY CASPASE-1.

CLEAVAGE BY CASPASE-1.

DIFVELYGNNAAAAESRKGQERENRWFLIGMTVAGVVLLGSL
FSRK -> VRTMPLVCFFSLASGQRSFTALLLYLFLLCWVI
VGDVDS (IN ISOFORM BCL-X(BETA)).
                                                                          Craniata; Vertebrata; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL.
                                                                                                                                                                                                                                                                                                                                     NO EFECT ON CASPASE-1 CLEAVAGE A (IN REF. 1; CAA80661).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NO CLEAVAGE BY CASPASE-1 NOR
                                                                                                                                                                                                                                                                                                                                                                  REDUCES ANTI-APOPTOTIC
                                                                                                                                                               218
         S.J.;
conserved
                                                                                                                                                                                                                                                                                                                                                                          HETERODIMERIZATION
EFECT ON CASPASE-1
EFECT ON CASPASE-1
                                                                                                                                                                                                                                                                                                                                                                                                       HETERODIMERIZATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      splicing;
                                                                                                                                                                                                                                                                                                                                                                                                                                           NO HETERODIMERIZATION WITH BAX LOSS OF ANTI-APOPTOTIC
                                                                                                                                                                ₽
                                                                          Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                          S,
                                                                                                                 beta
         homolog,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Transmembrane;
                                                                                                                                                                                                                                                                                                        Length 233
                                                                                                                                                                                                                                                                                                                              CRC64;
                                                                                   Euteleostomi;
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WITH BAX.
CLEAVAGE.
CLEAVAGE.
         вах,
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GN DT DT

01-NOV-1997 (Rel. 35, Creat 01-NOV-1997 (Rel. 35, Last 15-JUN-2002 (Rel. 41, Last Apoptosis regulator Bcl-W. BCL2L2 OR BCLW.

Created)
Last sequence up

update)

BCLW_MOUSE

BCLW_MOUSE P70345;

STANDARD;

PRT;

193

A

RESULT 14

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                                                                                                                                                              Query Match
Best Local S
Matches 34
                                                                                                                                                                                                                                                                                  InterPro; IPR002475; BCL2_family.
InterPro; IPR000712; BCl2_BH.
Pfam; PF00452; BCl-2; 1.
SMART; SM00337; BCL; 1.
PROSITE; PS01080; BH1; 1.
PROSITE; PS01258; BH2; 1.
PROSITE; PS01258; BH3; 1.
PROSITE; PS01258; BH3; 1.
PROSITE; PS01258; BH3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWI
between
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                                                                                                                                                                                                                               Apoptosis; Alternative splicing.
DOMAIN 59 73 BH3.
DOMAIN 98 118 BH1.
DOMAIN 150 165 BH2.
                                                                                                                                                                                                                                                                                                                                                                                                             Genew;
                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; L22474; AAA03620.1; PIR; B47538; B47538.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        use by non-profit institutions as long a modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    +++
                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                MIM; 600040;
                                                                                                                                                                                                                                                                                                                                                                                                             HSSP; Q07817; 1M
Genew; HGNC:959;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -I- ALTERNATIVE PRODUCTS: THE MEMBRANE ISOFORM ALPHA AND 1
CYTOPLASMIC ISOFORMS, BETA, GAMMA AND DELTA ARE GENERA
ALTERNATIVE SPLICING.
-I- TISSUE SPECIFICITY: EXPRESSED IN A WIDE VARIETY OF TIS
-I- DOMAIN: INTACT BH3 DOMAIN IS REQUIRED BY BIK, BID, BAY
BAY FOR THEIR PRO-APOPTOTIC ACTIVITY AND FOR THEIR INT
WITH ANTI-APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.
APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.
APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.
-I- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
-I- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
-I- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
-I- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
-I- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -
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131
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUBCELLULAR LOCATION: Cytoplasmic. ALTERNATIVE PRODUCTS: THE MEMBRANE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 74:609-619(1993).
FUNCTION: ACCELERATES PROGRAMMED CELL DEATH BY BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUBUNIT: FORMS HOMODIMERS AND HETERODIMERS E1B 19K PROTEIN, BCL-X(L), MCL-1 AND A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HOMOLOG E1B 19K PROTEIN
                                                                                                                                    PTDKELVAQAKALGRE-YVHARLLRAGLSWSAPERA-SPAP-GGRLAEVCTVLLRLG---
               AMVHALVDCLGEFVRKTLATWLRRRGGWTDVLK
:: :: :|:|: | |:: :||| :||
                                                      DSNMELQRMIAAVDTDSPREVFFRVAADMFSDGNFNWGRVVALFYFASKLVLKALCTKVP
                                                                                                         PTSSEQIMKTGALLLQGFIQDRAGRMG--GEAPELALDPVPQDASTKKLSECLKRIGDEL
ELIRTIMGWTLDFLRERLLGWIQDQGGWVRLLK
                                                                                                                                                                          Similarity
                                                                                                                                                                                                               59
98
150
218
                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                            IMAZ
                                                                                                                                                                                                                     AA;
                                                                                                                                                                                                                  118
165
24220
                                                                                                                                                                            11.3%;
22.2%;
                                                                                                                                                                                                                  MW;
                                                                                                                                                                25;
                                                                                                                                                                            Score 100;
Pred. No. 0.
                                                                                                                                                           Pred. No. 0.0.5; Mismatches
                                                                                                                                                                                                                    F69DCD70F960192F CRC64;
                         134
 163
                                                                               ITWGKVVSLYSAAAGLAVDCVRQAQP
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.01;
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                                                                                                                                                                                         Length
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DOMAIN.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   restrictions
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                                                                                                                                                                                           218;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WITH BCL-2
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MBL outstation -
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D BY
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tions on its
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Matches
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SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ross A.J., Waymire K.G., Moss J.E., Parlow A.F., S
Russell L.D., Macgregor G.R.;
"Testicular degeneration in Bolw-deficient mice.";
Nat. Genet. 18:251-256(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gibson L., Holmgreen S.P., Huang D.C., Bernard O., Copeland N.G., Jenkins N.A., Sutherland G.R., Baker E., Adams J.M., Cory S.; "bcl-w, a novel member of the bcl-2 family, promotes cell survival.";
                                                                                                                                                                                                                                                                                            SMART; SM00337;
SMART; SM00265;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -i- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1
-i- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2
-i- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4
-i- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                     DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; U59746; AAB09056.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     or send
                                                                                                                                                                                                                                                                                                                                                                                                                                                                entities requires a license agreement (See http://www.isb-sib.ch/announce/
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=96358615; PubMed=8761287;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                  DOMAIN
                                                                                                                                                                                                               Apoptosis.
                                                                                                                                                                                                                          PROSITE; PS50063;
                                                                                                                                                                                                                                                                  PROSITE;
                                                                                                                                                                                                                                                                             PROSITE; PS50062;
                                                                                                                                                                                                                                                                                                                                                         InterPro;
                                                                                                                                                                                                                                                                                                                                                                       InterPro;
                                                                                                                                                                                                                                                                                                                                                                                     MGD; MGI:108052;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -!- FUNCTION: PROMOTES CELL SURVIVAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE=98160183; PubMed=9500547;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                              InterPro;
                                                    37
96
                                                                           22
                                                                                                                 Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUBCELLULAR LOCATION: Cytoplasmic.
TISSUE SPECIFICITY: EXPRESSED IN ALMOST ALL MYELOID CELL LINES AND IN A WIDE RANGE OF TISSUES, WITH HIGHEST LEVELS IN BRAIN, COLON,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AND SALIVARY GLAND.

DOMAIN: BH4 DOMAIN SEEMS TO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FUNCTION
 LVAFFVFGAALCAESVNKEMEPLVGQVQDWMVAYLETRLADWIHSSGGWAE 146
                       VVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTD
                                                  PAADPLHQAMRAAGDEF-ETRFRRTFSDLAAQLHVTPGSAQQRFTQVSDELFQGGPNWGR
                                                                           PTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAPG-GRLAEVCTVLLRLGITWGK
                                                                                                                                                                                                                                                                                                                    PF02180;
                                                                                                     . Similarity 27; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                     an
                                                                                                                                                                                                                                                                                                                                            IPR000712;
IPR003093;
                                                                                                                                                                                                                                                                                                                                                                      IPR002475; BCL2_family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     email to license@isb-sib.ch).
                                                                                                                                                           193 AA;
                                                                                                      Conservative
                                                                                                                                                                                     85
                                                                                                                                                                                                                                                                                                                    ВН4;
                                                                                                                                                                                                                                                                                         BCL;
BH4;
                                                                                                                                                                                                                                                                                                                                                                                                              AAB86430.1; -.
                                                                                                                                                                                                                                                                                                                                                                                      Bc1212
                                                                                                                                                                                                                                                  BH1;
BH2;
                                                                                                                                                                                                                          BH4_2;
                                                                                                                                                                                                                                                                              BCL2_FAMILY; 1.
                                                                                                                                                        29 B
104 B
151 B
20790 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                            Bc12_BH.
Bc12_BH4.
                                                                                                                 11.2%;
                                                                                                      19;
                                                                                                  Pred. No. 0.01
9; Mismatches
                                                                                                                                                                       вн2
                                                                                                                              Score 99;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                           36CA185F5945DFB4 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BE INVOLVED
                                                                                                                   0.011;
                                                                                                                               DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (BH2)
(BH4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IN THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (BH1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Usage
                                                                                                     63;
                                                                                                                               Length 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Skinner
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DOMAIN.
                                                                                                     Indels
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                               and
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                          131
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                                                                                                    Gaps
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AR11_XENLA
AR11_XENLA
AC 091828
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                                                                                                                                                                                                                            Query Match
Best Local S
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                                                                                                                                                                                                                                                                                                            TRANSMEM
SEQUENCE
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Q91828;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -!- SUBCELLULAR LOCATION: Membrane-bound (rocentral):
-!- DEVELOPMENTAL STAGE: DEVELOPMENTAL REGULATION OF OCCURS IN
BRAIN OF MID-METAMORPHOSIC TO POST-METAMORPHOSIC TADPOLES AN
ADULTS, WHERE AN INCREASE OF SEVERAL FOLD HAS BEEN OBSERVED.
ADULTS, WHERE AN INCREASE OF SEVERAL FOLD HAS BEEN OBSERVED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SMART; SM00337; BCL; SMART; SM00265; BH4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; X82461; CAA57844.1; -. HSSP; Q07817; 1MAZ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Entropean Bioinformatics Institute. There are no restude by non-profit institutions as long as its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cell-survival genes.";
Gene 158:171-179(1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Apoptosis regulary. .... \ Apoptosis regulary. Xenopus laevis (African clawed frog).

Xenopus laevis (African clawed frog).

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

Eukaryota; Metazoa; Anura: Mesobatrachia; Pipoidea; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation updat
Apoptosis regulator R11 (XR11).
                                                                                                                                                                                                                                                                                                                                                                                     Apoptosis;
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                        PROSITE; PS01258; BH2; 1.
PROSITE; PS50062; BCL2_FAMILY; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  use by non-profit institutions as long modified and this statement is not removed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADULTS, WHERE AN INCREASE OF SEVERAL FOLD HAS
-i- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1)
-i- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Cloning, characterization and expression of two Xenopus bcl-2-like
                                                                                                                                                                                                                                                                                                                                                                  DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROSITE; PS01080; BH1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          entities requires a license agreement (See http://www.isb-sib.ch/announce/
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=95331613; PubMed=7607538;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TISSUE-Head
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIGRFAMs;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -!- SIMILARITY: BELONGS TO THE BCL-2 FAMILY
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro;
157
                                                126 RGGW 129
                                                                                                   97
                                                                                                                                                66 EVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125
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NGGW
                                                                                                   QVMGELFRDGTNWGRIVAFFSFGRALCVESANKEMTDLLPRIVQWMVNYLEHTLQPWMQE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PF02180; BH4; 1.
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                                                                                                                                                                                                      l Similarity
17; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIGR00865; bcl-2;
                                                                                                                                                                                                                                                                                                                                                            Transmembrane.
101 120
152 167
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                                                                                                                                                                                                                                                                                                               204 AA;
                                                                                                                                                                                                      Conservative
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                                                                                                                                                                                                      15;
                                                                                                                                                                                                                              Score 98;
Pred. No.
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                                                                                                                                                                                                                                                                                                            3BFC6BE6DDA4CA03 CRC64;
                                                                                                                                                                                                      Mismatches
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Job time : 6.99217 secs

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Minimum DB
Maximum DB
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OM protein - protein search, using sw model
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  Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                            114
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Match
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Gapop 10.0 ,
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1534.145 Million cell updates/sec
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bcl-2-associated p
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hemopoletic-specif
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bcl-2-associated p
Bak protein - huma
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bcl-2-associated p
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B-cell lymphoma 2
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bronger amino nor	000					
probable amino aci	C86443	3	4.9	90	76.5	Я
e antigen precurso	S47409		21	8.7	77	44
Bcl-2 related - hu	I39055		17	8.7	77	43
spectrin beta chai	A46147		229	8.8	77.5	42
probable nitrate/n	T37042	2 2	412	8.8	77.5	41
anthranilate phosp	AH1857		36	8.8	77.5	40
gene bcl-2 protein	I58194		15	8.8	77.5	39
probable MFS trans	A83133		41	8.8	78	38
probable integral	G81907		35	8.8	78	37
e antigen precurso	S25651		21	8.8	78	36
core antigen - hep	S53181		18	8.8	78	35
hypothetical prote	T34702		54	8.9	78.5	34
hypothetical prote	T10583		31	8.9	78.5	33
mannosyltransferas	C82750		86	9.0	79.5	32
DNA helicase [impo	AE2404		82	9.0	79.5	31
hypothetical prote	T29140		232	9.1	80.5	30

ALIGNMENTS

RESULT I53744

	RESULT 2 TVHUA1 Tvansforming protein bc1-2, splice form alpha - human C:Species: Homo sapiens (man) C:Date: 31-Dec-1988 #sequence_revision 07-Jun-1996 #text_change 15-Oct-1999	·
	Qy 118 TLATWLRRRGGWTDVLKCV-VSTKPGFRSHWL-VATLCS 154	
	Oy 62GRLAEVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRK 117	
	Db 61 VHRDTAARTSPLRPLVANAGPALSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120	_
	Qy 62 61	_
	Qy 28 VAQAKALG	
 Ω	Query Match 15.5%; Score 137; DB 2; Length 236; Best Local Similarity 20.5%; Pred. No. 4.5e-06; Matches 45; Conservative 25; Mismatches 57; Indels 92; Gaps	
	C;Genetics: A;Gene: bc1-2 C;Superfamily: bc1 transforming protein	
	A;Roziouse LPC: minum A;Roziouse 1-236 (RES> A;Cross-references: GB:L14680; NID:g408946; PIDN:AAA53662.1; PID:g408947	
	A;Status: preliminary; translated from GB/EMBL/DDBJ A.MGlernla tune: mBNA	
	A;Title: Cloning and sequencing of a CDNA encoding the rat Bcl-2 protein: A;Reference number: I53744; MUID:94193015; PMID:8144041 A.Accession: T5374	
	R;Sato, T.; Irie, S.; Krajewski, S.; Reed, J.C. Gene 140, 291–292, 1994	
	<pre>C;Species: Rattus norvegicus (Norway rat) C;Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change 16-Jul-1999 C;Accession: I53744</pre>	
	I53744 gene bcl-2 protein - rat	

R:Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y. Nucleic Acids Res. 20, 4187-4192, 1926 A;Title: Isolation and characterization of A:Reference number: A37332; MUID:92375724; A;Accession: C37332

A; Status: nucleic acid sequence not shown; not compared with conceptual translation

the chicken bcl-2 PMID:1508712

gene:

expression

in a va

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& BCL-2 - rat (fragment)
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A; Residues: 1-95, 'A', 97-109, 'G', 111-236, 'S', 238-239 <TSU>
A; Residues: 1-95, 'A', 97-109, 'G', 111-236, 'S', 238-239 <TSU>
A; Cross-references: GB:M13994; NID:g179366; PIDN:AAA51813.1; PI
A; Note: this sequence has been corrected in reference A37332
A; Note: this sequence has been corrected in reference A37332
R:Seto, M.; Jaeger, U.; Hockett, R.D.; Graninger, W.; Bennett,
  C; Species:
                                                 RESULT
167432
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A; Map position: 18q21.3-18q21.3
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A;Residues: 1-58,'T',60-116,'R',118-239 <CLE>
A;Cross-references: GB:M14745; NID:g179370; PIDN:AAA35591.1; PID
A;Cross-references: GB:M14745; NID:g179370; PIDN:AAA35591.1; PID
Concogene Rs. 2, Zorn, S:, Jensen, J.P.; Coupland, R.W.; Ko, H.S.; Wri
Oncogene Res. 2, 263-275, 1988
A;Title: Consequences of the t(14;18) chromosomal translocation
A;Reference number: A27622; MUID:88217344; PMID:3285301
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A;Title: Analysis of the structure, transcripts, and protein A;Reference number: A29409; MUID:86259760; PMID:3523487
A;Accession: A29409
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A; Residues: 1-6,'S',8-58,'T',60-128,'C',130-239 <HUA2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R;Cleary, M.L.; Smith, S.D.; Sklar, J.
Cell 47, 19-28, 1986
A;Title: Cloning and structural analysis of cDNAs for bcl-2
A;Reference number: A24428; MUID:87002488; PMID:2875799
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A; Residues: 1-239 cEGU>
A; Note: this report is a correction
R; Tsujinoto, Y; Croce, C.M.
Proc. Natl. Acad. Sci. U.S.A. 83, 5:
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A;Residues: 1-58,'T',60-239 <HUA>
A;Accession: B27622
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R; Cleary, M.L.; Smith.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 )Description: blocks apoptosis in hematopoletic cells superfamily: bcl transforming protein ; B-cell ly; keywords: alternative splicing; apoptosis; B-cell ly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; Note: the sequence was determined from the germline gene; Comment: Constitutive expression of BCL2 following t(14:18) chromosomal translocation
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Best Local
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                                                                                                                                              AFVELYGPSMRPLFDFSWLSLKTLLS
                                                                                                                                                                                           DVLKCV-VSTKPGFRSHWL-VATLCS
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                                                                                                                                                                                                                                                                                                                                         APGAAAGPALSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTARGRFATVVEE
                                                                                                                                                                                                                                                                                                                                                                                                                                      KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA 76
                                                                                                                                                                                                                                             LFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWD 196
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norvegicus
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Pred. No. 1.1e-05;
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                                                                                                                                              222
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 somatic mutation ; PMID:2834197
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A; Gene:
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A; Cross-references: GB:AJ271720
C; Comment: This protein has ant
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A; Title: Cloning and functional analysis
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C;Superfamily: bcl transforming
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                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Molecule type:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Contents:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Reference number: JC7383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C; Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: mRNA
A; Residues: 1-236 < RES>
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                                                                                                                                                                                                                                                                                                                         ;Superfamily: bcl transforming protein;Keywords: B-cell lymphoma; ovary
                                                                                                                                                                                                                                                                                                                                                                               ;Genetics:
                                                                                                                                                                                                                                                                         Query Match
Best Local
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TLATWLRRRGGWTDVLKCV-VSTKPGFRSHWL-VATLCS
                                                                                                         VHRDMAARTSPLRPIVATTGPTLSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                                                                                                                                                                              MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDVGDVDAAPLGAAPTPGIFSFQPESNPTPA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VHRDTAARTSPLRPLVANAGPALSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
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                                     FTARGRFATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNR
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1: JC7383
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                                                                      -GRLAEVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRK 117
                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                     mRNA
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                                                                                                                                                                                                                                                                                                                                                                                               has anti-apoptotic
                                                                                                                                                                                                                                                                     14.8%;
19.6%;
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18.9%;
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Pred. No. 1.6e
27; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         27;
                                                                                                                                                                                                                                                                     Score 131;
Pred. No. 1
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17-Nov-2000
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ches 61;
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1.8e-05;
1es 57;
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transforming protein bcl-2, splice form beta - human
N.Alternate names: apoptosis regulator bcl-2
C.Species: Homo sapiens (man)
C.Date: 31-Dec-1988 #sequence_revision 31-Dec-1988 #text_change 15-Oct-1999
C.Accession: B29409; I52566; D37332
R.TSujimoto, Y.; Croce, C.M.
Proc. Natl. Acad. Sci. U.S.A. 83, 5214-5218, 1986
A.Title: Analysis of the structure, transcripts, and protein products of bcl-2, A.Reference number: A29409; MUID:86259760; PMID:3523487
A.Reference number: MID:86259760; PMID:3523487
A.Residues: 1-205 cTSU>
A.Cross-references: GB:M13995; NID:9179368; PIDN:AAA51814.1; PID:9179369
A.Title: Frequent incidence of somatic mutations in translocated BCL2 oncogenes
A.Title: Frequent incidence of somatic mutations in translocated BCL2 oncogenes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Molecule type: DNA
A; Residues: 1-33, 'E', 34-22
C; Genetics:
A; Gene: BCL2
A; Introns: 192/3
C; Superfamily: bcl transfor
C; Keywords: alternative sp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Cross-references: GB:L31532; GB:M16506; NID:g468336; PIDN:AAA3728 R;Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y. Nucleic Acids Res. 20, 4187-4192, 1992 A;Title: Isolation and characterization of the chicken bcl-2 gene: A;Reference number: A37332; MUID:92375724; PMID:1508712 A;A;Accession: E37332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            transforming protein bcl-2-alpha - mouse C;Speckes: Mus musculus (house mouse) C;Date: 31-Dec-1988 #sequence_revision 31-Dec-1988 #text_change 18-Jun-1999 C;Accession: A25960; E37332 R;Negrini, M.; Silini, E.; Kozak, C.; Tsujimoto, Y.; Croce, C.M. Cell 49, 455-463, 1987
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A; Residues: 1-236 < NEG>
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Best Local
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I52566
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ternative splicing; mitochondrion; transforming protein;
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,'E',34-220,'AL'
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19.68;
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Pred. No. 2.2e-05;
Pred. No. 2.7e-05;
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                                          oncogenes
                                                                                                                                                                                                                                    of bcl-2,
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TVMSB1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Molecule type: DNA
A; Residues: 1-33, 'E', 34-95, 'T', 97-109, 'R', 111-205
C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Cross references: GB:S72602; NID:g241046; PIDN:AAD14111.1; PID:g4261811 R;Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y. Nucleic Acids Res. 20, 4187-4192, 1992 A;Title: Isolation and characterization of the chicken bcl-2 gene: expres A;Reference number: A37332; MUID:92375724; PMID:1508712 A;Accession: D37332
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C;Keywords: alternative
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C;Date: 31-Dec-1988 #sequence_revision 31-Dec-1988 #text_change 18-Jun-1999
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A; Map position: 18q;
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A;Molecule type: DNA
A;Residues: 1-131 <TAN>
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A; Residues: 1-199
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                                                                                                                                                                                                                                                                                                                                                                                                               A; Accession: B25960
                                                                                                                                                                                                                                                                                                                                                                                                                               A; Reference number:
                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Title: Molecular analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R; Negrini,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C; Accession: B25960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        transforming protein bcl-2-beta - mouse
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Best Local (
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Best Local :
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                                                                                                                                                                               28 VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                71 LLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW
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                                                                                                                                                                                                                                                                                                                            BCL2
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FTARGREATVVEELERDGVNWGRIVAEEEEGGVMCVESVNREMSPLVDNIALWMTEYLNR
                                                                                                                                            MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDAGDADAAPLGAAPTPGIFSFQPESNPMPA
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                                                                        VHREMAARTSPLRPLVATAGPALSPVPPCVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
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                                                                                                                                                                                                                                     Similarity
                                    GRLAEVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRK 117
                                                                                                                                                                                                                                                                                                     bcl transforming protein
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18q21.3-18q21.3
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   E.; Kozak, C.;
                                                                                                                                                                                                                                                                                       splicing; transforming protein
                                                                                                                                                                                                                                   13.9%;
19.0%;
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17.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                               of mbcl-2: structure MUID:87187643; PMID:
                                                                                                                                                                                                                  24;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OMIM: 151430
                                                                                                                                                                                                                                     Pred.
                                                                                                                                                                                                                                                    Score 123;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 124;
Pred. No. 7
                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Tsujimoto,
                                                                                                                                                                                                                                   123; DB 1; Length 199
No. 9.2e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                               PMID: 3032455
                                                                                                                                                                                                                                                                                                                                                             PIDN: AAA37281.1.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B-cell lymphoma; follicular lymphoma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 1; 1
'.6e-05;
les 39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Y.; Croce, C.M
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                                                                                                                                                                                                                92;
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C; Superfamil
C; Keywords:
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A; Title: Isolation and characterization of
A; Reference number: A37332; MUID:92375724;
A; Accession: A37332
                                                                                                                                                                                                                                                                                                                                                                             transforming protein (bcl-2-alpha) - chicken
c;Speckes: Gallus gallus (chicken)
C;Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change 23-Feb-1997
C;Accession: A37332; S35453
R;Equchi, Y.; Ewert, D.L.; Tsujimoto, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       D
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R;Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y.
Nucleic Acids Res. 20, 4187-4192, 1992
A;Title: Isolation and characterization of A;Reference number: A37332; MUID:92375724; A;Accession: B37332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           transforming protein (bcl-2-beta) - chicken
C:Species: Gallus gallus (chicken)
C:Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change
                                                                                                                                                                                                                           A;Cross-references:
C;Genetics:
                                                                                                                                                                                                                                                           A; Molecule type: DNA
A; Residues: 1-233 <EGU>
                                                                                                                                                                                                                                                                                               A; Status: nucleic acid sequence not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Molecule type: DNA
A; Residues: 1-216 < EGU>
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                                                                                                                        Query Match
Best Local
                                                                                                                                                                      Superfamily: bcl transforming protein Keywords: mitochondrion; transforming
                                                                                                        Matches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cross-references: EMBL:D11381; EMBL:D11382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       197
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                                                                                                                      Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity 16.6 es 32; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NWGRIVAFFEFGGVMCVESVNREMSPLVDNIATWMTEYLNRHLHNWIQDNGGWVRACASL 196
                                   KYIHYKLSQRGYDWAAGEDRPPVPPAPAPAAAPAAVAAAGASSHHRPEPPGSAAASEVPP 76
                                                                      EYVHARLLRAGLSWSAPERASPAP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VSTKPGFRSHWLV 149
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCV 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KYIHYKLSQRGYDWAAGEDRPPVPPAPAPAAAPAAVAAAGASSHHRPEPPGSAAASEVPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SST----GGWLV
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                                                                                                        . Similarity
35; Conser
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                                                                                                 Score 115.5; DB 2;
Pred. No. 0.0006;
Pred. No. 62;
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Pred. No. 0.00044;
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                                                                                                                                                                      protein; transmembrane protein
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PMID:1508712
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   -GGRLAEVCTVLLRLGI 76
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                                                                                                     Indels
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RESULT 11
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JE0203
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                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                        R;Cazals-Hatem, D.L.; Louie, D.C.; Tanaka, S.; Reed, J.C. Biochim. Biophys. Acta 1132, 109-113, 1992
A;Title: Molecular cloning and DNA sequence analysis of cDNA A;Reference number: S24390; MUID:92379084; PMID:1511008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             transforming protein (Bcl-2) homolog - chicken
C;Species: Gallus gallus (chicken)
C;Date: 13-Jan-1995 #sequence_revision 13-Jan-1995 #text_change 16-Jul-1999
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R;Ban, J.; Eckhart, L.; Weninger, W.; Mildner, M.; Tschachler, E. Biochem. Biophys. Res. Commun. 248, 147-152, 1998
A;Title: Identification of a human cDNA encoding a novel bcl-x isoform. A;Reference number: JE0203; MUID:98340865; PMID:9675101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 apoptosis regulator bcl-x isoform N; Alternate names: h-bcl-xbeta
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                                                                                                                                                                                                                                               C; Keywords: mitochondrion; transmembrane protein
                                                                                                                                                                                                                                                                     A;Cross-references: EMBL:Z11961; NID:g62969; PIDN:CAA78018.1; PID:g62970 C;Superfamily: bcl transforming protein
                                                                                                                                                                                                                                                                                                             A; Molecule type: mRNA
A; Residues: 1-232 <CAZ>
                                                                                                                                                                                                                                                                                                                                                                           A; Reference number: A; Accession: S24390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C; Superfamily: bcl transforming protein
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A; Residues: 1-227 <BAN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C;Species: Homo sapiens (man)
C;Date: 21-Aug-1998 #sequence_revision 21-Aug-1998 #text_change 16-Jul-1999
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                                                                                                                                                                                                                                                                                                                                                      A; Status: preliminary
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Gene: bcl-x
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Cross-references: GB:U72398; NID:g1622940;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Accession: JE0203
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Best Local :
                                                                                                                                                                                                    Query Match
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             125 QVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIAAWMATYLNDHLEPWIQE 184
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                                                                                                                                                                                   Loca I
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LRGCAAPPGVHLALRQAGDEFSRRYQRDFAQMSGQLHLTPFTATGRFVAVVEELFRDGVN
                                                                                                                         EYVHARLLRAGLSWSAPERASPAP---
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                                                                               KYIHYKLSQRGYDWAAGEDRPPVPPAPAPAAAPAAVAAAGASSHHRPSPPARLLLVRCPR
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCV 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AEGLRPAPPGVHLALRQAGDEFSRRYQRDFAQMSGQLHLTPFTAHGRFVAVVEELFRDGV 136
                                                                                                                                                                                   Similarity
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                                                                                                                                                                                   12.1%;
16.0%;
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                                                                                                                                                                  26;
                                                                                                                                                                                 Score 107; DB 2
Pred. No. 0.0042
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Pred. No. 0.00083;
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; Mismatches
                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PIDN:AAB17354.1; PID:g1622941
                                                                                                                                                                                                       DB 2;
                                                                                                                                                                    63;
                                                                                                                                                                                                    Length 232;
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                                          GGRLAEVCTVLLRLGIT
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                                                                                                                                                                                                                                                                                                                                                                                                                encoding chicken homolog
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                                                                                                                                                                Gaps
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bcl-x transmembrane deleted - mouse
c;Species: Mus musculus (house mouse)
C;Date: 02-7ull-1996 #sequence_revision 02-Jul-1996 #te
C;Accession: I49057
F;Fang, W.; Rivard, J.J.; Mueller, D.L.; Behrens, T.W.
                                                                                                                                                                                                                                                                                                                           A; Accession: I49057
A; Status: preliminary; translated
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Title: bcl-x, a bcl-2-related gene that functions as a dominant regulator of apoptotic A;Reference number: A47537; MUID:93364977; PMID:8358789
A;Accession: A47537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C;Species: Gallus gallus (chicken)
C;Date: 03-May-1994 #sequence_revision 03-May-1994 #text_change 16-Jul-1999
C;Accession: A47537
R;Boise, L.H.; Gonzalez-Garcia, M.; Postema, C.E.; Ding, L.; Lindsten, T.;
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                                                                                                                                                                                                               A;Gene: bcl-x-long C;Superfamily: bcl transforming protein
                                                                                                                                                                                                                                                                            A; Cross-references:
                                                                                                                                                                                                                                                                                              A; Molecule type: mRNA
A; Residues: 1-214 < RES>
                                                                                                                                                                                                                                                                                                                                                                      A; Title: Cloning and molecular characterization of mouse A; Reference number: I49055; MUID:95052604; PMID:7963517
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A;Residues: 1-190 <BOT>
A;Cross-references: GB:Z33110; GB:L20120
C;Superfamily: bcl transforming protein
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C; Species: Gallus gallus (chicken)
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                      126
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                                                                                                                                                        Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  66 VHRSSLEVHEIVRASD------VRQALRDAGDEFELRYRRAFSDLTSQLHITPGTAYQ 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
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RGGW 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WVRIVAFFEFGGVMCVESVNREMSPLVDNIATWMTEYLNRHLHNWIQDNGGWDAFVELYG 196
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                                                        QVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATYLNDHLEPWIQE 184
                                                                                             EVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125
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                                                                                                                                                                                                                                                                                                                                                                                                            153, 4388-4398, 1994
                                                                                                                                                        Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                        EMBL:U10102; NID:g506649; PIDN:AAA82174.1; PID:g506650
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                                                                                                                                                        11.8%;
26.6%;
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                                                                                                                                  Score 104; DB 2;
Pred. No. 0.0076;
5; Mismatches 32;
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R;Michaelidis, T.M.
submitted to the EMBL Data
A;Reference number: S51761
A;Accession: S51761
A;Status: preliminary
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C;Species: Mus musculus (house mouse)
C;Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 16-Jul-1999
                                                                                A; Introns: 125, C; Superfamily:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C;Species: Rattus norvegicus (Norway rat)
C;Date: 07-May-1995 #sequence_revision 01-Sep-1995 #text_change 02-Mar-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-233 <KAM>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        J. Immunol. 153, 4388-4398, 1994
A; Title: Cloning and molecular characterization of mouse A; Reference number: I49055; MUID:95052604; PMID:7963517
                                                                                                                                           A; Experimental source: embryonic; brain A; Note: smaller form due to splicing
                                                                                                                                                                                                         A; Molecule type: DNA
A; Residues: 1-125,189-233 <MI2>
                                                                                                                                                                                                                                                                                   A;Cross-references: EMBL:X82537; NID:g607176; A;Experimental_source: embryonic; brain
                                                                                                                                                                                                                                                                                                                                A; Residues: 1-233 <MIC>
                                                                                                                                                                                                                                                                                                                                                   A; Molecule type: DNA
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A; Reference number: S52866
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A; Residues: 1-233 <RE
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Matches
                       Query Match
Best Local
                                                                                                                          Genetics:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RGGW 129
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    l Similarity
17; Conser
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Rivard, J.J.; M
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26.6%;
                       11.8%;
26.6%;
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Pred. No. 0.0084;
.5; Mismatches 32;
Score 104; DB 2;
Pred. No. 0.0084;
5; Mismatches 32;
                                                                                                                                                                                                                                                                                                                                                                                                                                   November 1994
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                                                                                                                                                                                                                                                                                                             PIDN:CAA57886.1;
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                                      Length 233
    Indels
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EVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125

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Result
No.
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Perfect score:
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Maximum Match 100%
Listing first 45 summaries
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Maximum DB seq length: 2000000000
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                                                                                                                                                                                                                                                                                                                                                     Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                852.5
852.5
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                                                                                                                                                                                                                                              Score
                                                484
169.5
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Match
      100.0
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93.7
92.8
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/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT: *
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  AAY14156
AAY14154
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AAB85665
AAB85665
AAB85760
ABB63760
ABB64401
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872.393 Million cell updates/sec
                                         Human Bok protein Rat Bok protein Se Human ORFX ORF1208 Human Bcl-2-like Breast and ovarian Drossphila melanog
                                                                                                                                                                                                                                           Description
      Drosophila
Human bcl2
                                                                                                                                                                              Human Bok protein
Rat Bok protein se
melanog
proto-o
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24 14.	125 14.1	25 14.	.5 14.	.5 14.	Մ	14.	30	130 14.7	30			30 14.	31 14.	ω	.33 15.	33	3 15.	33 15.	33 15.	33 15.	3 15.	33 1	3 15.	33 15.	33 15.	33 15.	33 15.	.33 15.	33 15.	15.	15.	4 15.	134 15.2	4 15.
205	239	239	239	232	232	239	σ	σ	Φ	6 20	9 20	229 17	239	239	. 239 23	239 23	239 22	239 22	239 22	239	239	239	239 22	239 22	239 20	239 20	239	239	239	239	239 9	239	2 239 22	239
AAR70332	AAW94345	AAW01018	AAY69203	AAW94347	AAW01020	AAR47344	AAU76554	AAB35131	AAB74128	AAW87811	AAW94348	AAW01021	03	ABB05227	AAU76553	АВВ75986	AAB50537	AAB35130	AAB48288	AAB74129	AAB74127	AAG64037	AAG64035	AAE08573	AAW87812	AAW87810	AAW40217	40	\mathfrak{s}	AAR42312	AAP80987	AAG64038	403	AAW02383
Human bcl-2 protei	Bcl-	osis-b	acid s	Human Bcl-2 mutant	sis-block	oncogene bo	Bcl-2 pc	٠		5	Bcl-	osis-bl	Bc1-2	a	Bcl-2 poly	in sequence.	Human Bcl-2 protei	.~	BCL-2	\sim	Human bcl-2. Homo	Bc1-2	Bc1-2	uman Bcl-2	Bc1-2-	an Bcl-2	bc1'-2.	bcl-2 alpha	n bcl-2 pro	Bcl-2 oncogene pro	ce of h	n Bcl-2 prote	Bc1-2	Human BCL2. Homo

ALIGNMENTS

DR	ΡI	XX	PA	1	×	ΡF	XX	ΡD	XX	PΝ	×	SO	××	ΧV	ΚW	KW	ΚW	XW	×	DE	×	ΡŢ	×	AC	×	AAY14156 ID AAY	RESULT 1
WPI; 1999-327356/27.	Hsu SY, Hsueh AJW;		(STRD) UNIV LELAND STANFORD JUNIOR.	0/-NOV-199/; 9/0S-0064943.		04-NOV-1998; 98WO-US23523.		20-MAY-1999.		WO9924453-A1.		Homo sapiens.		proliferative disorder; human.	ovarian carcinoma; glandular epithelial carcinoma; cancer; therapy;	reproductive tissue; uterine carcinoma; testicular carcinoma; cervix;	pro-apoptotic protein; apoptosis inducer; hyperproliferation disease;	Bok protein; Bcl-2-related ovarian killer; BH3i variant; endometriosis;		Human Bok protein sequence.		27-JUL-1999 (first entry)		AAY14156;		AAY14156 standard; Protein; 170 AA.	ST 1

XX XX

N-PSDB; AAX61106

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RESULT 2
AAY14154
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CC protein, of the invention. Coding sequences for Bok or BH3i variants of protein can be introduced into cell populations to upregulate expression of the protein can be introduced into cell populations of the cell population. This is useful for treatment of diseases where there is hyperproliferation of reproductive tissue, e.g. uterine, testicular cardinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic Bcl-2 proteins. The Bok protein can be used to elucidate apoptosis mechanisms in reproductive and cother tissues, and provide a means for manipulating apoptosis. The Bok protein and transgenic animal are also useful for identifying ligands or constrates. Modulation of the gene activity in vivo is useful for custoriers. Bok genes are also useful for identification of cell type based on expression. Identification of Bok as a new pro-apoptotic protein with wide tissue distribution and heterodimerisation properties
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                    Hsu SY,
                                                                                                                                                                                                                                                                                                                                             Bok protein; Bcl-2-related ovarian killer; BH3i variant; endometriosis; pro-apoptotic protein; apoptosis inducer; hyperproliferation disease; reproductive tissue; uterine carcinoma; testicular carcinoma; cervix; ovarian carcinoma; glandular epithelial carcinoma; cancer; therapy;
                                                                                                         07-NOV-1997;
                                                                                                                                                   04-NOV-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Rat Bok protein sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAY14154 standard; Protein; 170 AA
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                                                                                                                                                                                                                                          WO9924453-A1
                                                                                                                                                                                                                                                                                  Rattus rattus
                                                                                                                                                                                                                                                                                                                               proliferative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TWLRRRGGWTDVLKCVVSTKPGFRSHWLVATLCSFGRFLKAAFFLLLPER
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                                                              UNIV LELAND STANFORD JUNIOR
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                                                                                                                                                                                                                                                                                                                               disorder;
                                                                                                         97US-0064943
                                                                                                                                                   98WO-US23523
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Pred. No. 4.9e-93;
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                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Sim
Matches 166;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and ovarian carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic Bcl-2 proteins. The Bok protein can be used to elucidate apoptosis mechanisms in reproductive another tissues, and provide a means for manipulating apoptosis. The Bok protein and transgenic animal are also useful for identifying ligands or substrates. Modulation of the gene activity in vivo is useful for prophylaxis and therapy of, e.g. cancer and other proliferative disorders. Bok genes are also useful for identification of cell type based on expression. Identification of Bok as a new pro-apoptotic protein with wide tissue distribution and heterodimerisation properties
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 1999-327356/27
N-PSDB; AAX61104.
                                  07-NOV-1997;
                                                                  04-NOV-1998;
                                                                                                                                                                                                                     ovarian carcinoma;
                                                                                                                                                                                                                                 Bok protein; Bcl-2-related ovarian killer; BH3i variant; endometrios; pro-apoptotic protein; apoptosis inducer; hyperproliferation disease, reproductive tissue; uterine carcinoma; testicular carcinoma; cervix;
                                                                                                                                                                                                                                                                                                   Human Bok protein sequence
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                                                                                                                                                                                                                                                                                                                                                                    AAY14155;
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(STRD ) UNIV
                                                                                                  20-MAY-1999
                                                                                                                                 WO9924453-A1
                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                  proliferative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TWLRRRGGWTDVLKCVVSTKPGFRSHWLVATLCSFGRFLKAAFFLLLPER 170
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 170 AA;
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                                                                                                                                                                                                                                                                                                                                  (first entry)
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                                                                                                                                                                                                    disorder; human
                                  97US-0064943
                                                                  98WO-US23523
                                                                                                                                                                                                                 glandular epithelial carcinoma; cancer; therapy;
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 STANFORD JUNIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96.5%;
                                                                                                                                                                                                                                                                                                                                                                                                    213
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ismatches 4;
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Best Local :
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This sequence is a mammalian Bok (Bcl-2-related ovarian killer) protein, of the invention. Coding sequences for Bok or BH31 variants of pro-apoptotic Bok-related protein can be introduced into cell populations to upregulate expression of the proteins in order to induce apoptosis in the cell population. This is useful for treatment of diseases where there is hyperproliferation of reproductive tissue, e.g. uterine, testicular and ovarian carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic Bcl-2 proteins. The Bok
                                                                                      pro-apoptotic protein; apoptosis inducer; hyperproliferation disease;
reproductive tissue; uterine carcinoma; testicular carcinoma; cervix;
ovarian carcinoma; glandular epithelial carcinoma; cancer; therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim
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                                            Rattus rattus
                                                                          proliferative
                                                                                                                                          Bok protein;
                                                                                                                                                                        Rat
                                                                                                                                                                                                       27-JUL-1999
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                                                                                                                                                                                                                                                                                                                                                                                                                                               78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                                                                                      Bok protein sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1999-327356/27.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGRLAEVCTVLLRL------
                                                                                                                                                                                                                                                                                                                                                                    STKPGFRSHWLVATLCSFGRFLKAAFFLLLPER 170
                                                                                                                                                                                                                                                                                                                                                                                                                 WGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
                                                                                                                                                                                                                                                                                                                                                                                                                              WGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV 137
                                                                                                                                                                                                                                                                                                                                                     STKPGFRSHWLVATLCSFGRFLKAAFFLLLPER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Page 55-56; 62pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hsueh AJW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                      Bcl-2-related ovarian killer;
                                                                                                                                                                                                      (first entry)
                                                                          disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ΑĄ,
                                                                                                                                                                                                                                                                   Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         96.4%;
79.8%;
                                                                                                                                                                                                                                                                     213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 852.5;
Pred. No. 2.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ovarian killer), a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                     AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .6e-89;
                                                                                                                                      BH3i variant; endometriosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----GIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           213;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              77
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Qy
                                                                                                                                                         This sequence is a mammalian Bok (BCl-2-related ovarian killer)
CC protein, of the invention. Coding sequences for Bok or BH3i variants of
CC protein, of the invention. Coding sequences for Bok or BH3i variants of
CC pro-apoptotic Bok-related protein can be introduced into cell populations
CC to upregulate expression of the proteins in order to induce apoptosis in
CC the cell population. This is useful for treatment of diseases where there
CC is hyperproliferation of reproductive tissue, e.g. uterine, testicular
CC and ovarian carcinomas, endometriosis, squamous and glandular epithelial
CC carcinomas of the cervix. Cell killing induced by Bok can be suppressed
CC by co-expression with selective anti-apoptotic Bcl-2 proteins. The Bok
CC protein can be used to elucidate apoptosis mechanisms in reproductive and
CC protein and transgenic animal are also useful for identifying ligands or
CC grophylaxis and therapy of, e.g. cancer and other proliferative
CC disorders. Bok genes are also useful for identification of cell type
Dased on expression. Identification of Bok as a new pro-apoptotic protein
CC with wide tissue distribution and heterodimerisation properties
                                      Query Match
Best Local S
Matches 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mammalian Bok (Bcl-2-related protein and its related gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 07-NOV-1997;
                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (STRD ) UNIV LELAND STANFORD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20-MAY-1999
                                                                                                                                                   facilitates
 1 MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1999-327356/27.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAX61103
                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Page 53-54; 62pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hsueh AJW;
                                                                                                             213 AA;
                                      Conservative
                                                                                                                                                   elucidation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               97US-0064943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98WO-US23523
                                                       93.7%;
78.4%;
                                                                                                                                                of apoptosis mechanisms
                                    Score 828.5; DB 20;
Pred. No. 1.5e-86;
""" matches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ovarian killer), a pro-apoptotic
                                                                          20;
                                      Indels
                                                                       Length 213;
                                      43;
 60
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Gaps 1;

QΥ g 61 Н GGRLAEVCTVLLRL-----MEVLRRSSYFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP ----GIT 77 60

61 GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT

121 78 WGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV

180

Ωy Вþ

138 STKPGFRSHWLVATLCSFGRFLKAAFFLLLPER

STDPGFRSHWLVATLCSFGRFLKAAFFLLLPER

RESULT 5 AAB41444

밁 QΥ DЪ

181

AAB41444 standard; Protein;

AAB41444;

08-FEB-2001 (first entry)

Human ORFX ORF1208 polypeptide sequence SEQ ID NO:2416.

Human; open reading frame; ORFX; detection; vulnerary; antipsoriatic; antiparkinsonian; anticonvulsant; osteopathic; antiarthritic; immunosuppressant; cardiant; cytostatic; hepatotropic; nootropic; neuroprotective;

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Query Match
Best Local
                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   31-MAR-1999;
02-APR-1999;
05-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          nucleic acids can be used to express ORFX proteins in gene therapy vectors. The proteins and nucleic acids may be used to treat cancers, proliferative disorders, neurodegenerative disorders, osteoarthritis, graft vs host disease, cardiovascular disease, diabetes mellitus, thypertension, hypothyroidism, cholesterol ester storage, systemic lupus erythematosus, severe combined immunodeficiency (SCID), AIDS, viral, bacterial or fungal infection, malaria, autoimmune disorders, asthma,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             antidiabetic; hypotensive; dermatological; immunosuppressive; antiinflammatory; antibacterial; antiviral; antifungal; antirheumatic; antithyroid; and antianaemic. The sequences can be used for determining the presence of or predisposition to, or preventing or treating pathological conditions associated with an OREX-associated disorder. The
                                                                                                                                                                                                                                                                                                                                                                                                                                          allergies, aplastic anaemia, burns, wounds, bone and cartilage on nocturnal haemoglobinuria, antiinflammatory disease; to enhance coagulation; to inhibit thrombosis; and as a contraceptive.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            antipsoriatic; antiparkinsonian; nootropic; neuroprotective;
osteopathic; anticonvulsant; antiarthritic; immunosuppressant;
immunostimulant; cardiant; thrombolytic; coagulant; vasotropic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAC74446 to AAC77606 encode the proteins given in AAB40237 to AAB43397, which represent the human ORFX open reading frames 1 to 3161. The ORFX sequences have activities such as: cytostatic; hepatotropic; vulnerary;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Novel nucleic acids and peptides derived from open reading useful for treating e.g. cancers, proliferative disorders, neurodegenerative disorders and cardiovascular disease -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cholesterol ester storage; systemic lupus erythematosus; infection; severe combined immunodeficiency; malaria; autoimmune disorder; asthma; altergy; aplastic anaemia; nocturnal haemogloblnuria; burn; wound; bone damage; cartilage damage; antiinflammatory disease; coagulation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              antianaemic; gene therapy; cancer; proliferative disorder; hypertension; neurodegenerative disorder; osteoarthritis; graft vs host disease; cardiovascular disease; diabetes mellitus; hypothyroidism; SCID; AIDS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          hypotensive; dermatological; immunosuppressive; antiinflammatory; antiviral; antibacterial; antifungal; antirheumatic; antithyroid;
                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         30-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 31-MAR-2000; 2000WO-US08621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   05-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            thrombosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (CURA-) CURAGEN CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         immunostimulant; thrombolytic;
61
                                                           61
                                                                                                                                                                                            GGRLAEVCTVLLRL----
                                                                                                                                                           MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP 60
GGRLAEVCAVLLRLGDELEMIRPSVYRNVARQLHISLQSEPVVTDAFLAVAGHIFSAGIT
                                                                                                                          MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2000-602362/57.
                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Page 1750-1751; 5507pp; English.
                                                                                                                                                                                                                                                                                                                                                                                     213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         contraceptive.
                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2000US-0540763
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Leach M;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99US-0127607.
99US-0127636.
99US-0127728.
                                                                                                                                                                                                                                                                                                                                                                                  AΑ
                                                                                                                                                                                                                                                                                  92.8%;
76.5%;
                                                                                                                                                                                                                                                       2
                                                                                                                                                                                                                                                                                  Score 820.5;
Pred. No. 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         coagulant; vasotropic; antidiabetic;
                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                          1.2e-85;
5;
                                                                                                                                                                                                                                                                                                                   DΒ
                                                                                                                                                                                                                                                                                                                21;
                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                      213;
                                                                                                                                                                                                                                                       43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   frame
                                                              ---GIT
                                                                                                                                                                                                                                                    Gaps
                                                                  77
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8→ 5

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41 ARLLRAGLSWSAPERASPAPGGRLAEVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQ 100

Matches Query Match Best Local

96;

Conservative

5

Similarity

54.8%; 73.8%;

Score 484; DE Pred. No. 2.3e 5; Mismatches

DB 22; .3e-47;

Length

6;

Gaps

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QY

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RESULT 6
AAB85665
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                               Bcl-2-like polypeptides (PEP1). The NAM1 and PEP1 may be used in the prevention, diagnosis and treatment of diseases associated with inappropriate Bcl-2-like polypeptides' expression. The NAM1 may be used to produce the soluble Bcl-2-like polypeptides by standard recombinant methodolgy. The polypeptides may also be used as antigens in the production of antibodies against Bcl-2 and in assays to identify modulators of Bcl-2 expression and activity. The anti-Bcl-2 antibodies and antagonists may be used to down regulate expression and activity. The anti-PEP1 antibodies may also be used as diagnostic agents for detecting the presence of Bcl-2 polyps in samples (e.g. by enzyme linked immunosorbant assay (ELISA)). Disorders that may be prevented, diagnosed
                                                                              and/or treated by the above methods include, immunodeficiencies (e.g. a gammaglobulinemia and B cell lymphoproliferative disorder), autoimmune disorders (e.g. rheumatoid arthritis and Grave's disease), allergic
                            reactions, inflammations, respiratory diseases and cardiovascular disorders (a full list of disorders is given in the specification present sequence represents a human Bcl-2-like polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bcl-2-like polypeptide; autoimmune disorder; allergy; immunomodulatory; respiratory; cardiovascular; antiarthritic; immunostimulant; vaccine; immunosuppressive; antiinflammatory; gene therapy
Sequence
                                                                                                                                                                                                                                                                                                                                                                 Claim 12; Page 277-278; 285pp; English.
                                                                                                                                                                                                                                                                                                                                                                                               Nucleic acids encoding human Bcl-2-like polypeptides, useful preventing, diagnosing and/or treating - \,
                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-FEB-2000;
07-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAB85665;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ruben
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (HUMA-) HUMAN GENOME SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31-JAN-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            09-AUG-2001.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Human Bcl-2-like polypeptide (clone HHFHE17).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAB85665 standard; Protein; 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            78
                                                                                                                                                                                                                                                                                                                           invention provides nucleic acid molecules (NAMI) encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2001-476279/51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WGKVVSLYSAAAGLAVDCVRQAQPAMYHALVDCLGEEVRKTLATWLRRRGGWTDVLKCVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WGKVVSLYAVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Duan
134 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000US-0179487.
2000US-0180697.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
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                                                  in the specification). The
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                             invention. The breast and ovarian cancer associated DNA, protein, agonist or antagonist sequences exhibit cytostatic; immunosuppressive; nootropic; neuroprotective; antiviral; antiallergic; hepatotropic; antidiabetic; antiinflammatory; antivired; antiallergic; hepatotropic; antibacterial; antifungal; antiparasitic and cardiant activity. The polynucleotide and protein sequences are used in the diagnosis of cancer, particularly breast and ovarian cancer. The nucleic acid sequences, proteins, agonists and agonists may also be used in the diagnosis, provention and treatment of immune disorders e.g. Addison's disease, allergies, autoimmune haemolytic anaemia, autoimmune thyroiditis, theumatoid attention and treatment of disease, multiple sclerosis, theumatoid attention and treatment of disease, multiple sclerosis, theumatoid
                                                                                                                                                                                                                                               Sequences AAF21614 - AAF22031 represent DNA sequences encoding human proteins AAB59711 - AAB59128. The DNA and protein sequences are associated with breast and ovarian cancer. Included in the invention are sequences AAF22032 - AAF22040 and AAB59129 which are used in the
                                                                                                                                                                                                                                                                                                                                                                     New human breast and ovarian cancer associated gene sequences and the polypeptides encoded by these genes, useful in the prevention, treatment and diagnosis of cancer, immune disorders, cardiovascular disorders and neurological diseases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nootropic; neurpprotective; antiviral; antiallergic; l
antidiabetic; antiinflammatory; antiulcer; vulnerary;
antibacterial; antifungal; antiparasitic; cardiant; ir
                  arthritis and ulcerative colitis; cardiovascular disorders
                                                                                                                                                                                                                                                                                                                                      Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rosen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (HUMA-) HUMAN GENOME SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        08-MAR-2000;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cardiovascular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Addison's disease; allergy; autoimmune haemolytic anaemia; autoimmune thyroiditis; diabetes mellitus; Crohn's disease; multiple sclerosis; rheumatoid arthritis; ulcerative colitis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Breast and ovarian cancer associated antigen protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAB58949 standard; Protein; 176
                                                                                                                                                                                                                                isolation and characterisation of the DNA and protein sequences of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          161
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVVSTKPGFRSHWLVATLCSFGRFLK 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAFFVLLPER 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            breast cancer;
                                                                                                                                                                                                                                                                                                                                        Page 1103; 1299pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000WO-US05881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 disorder; wound healing; neurological disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0124270
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healing;
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                                                                                                           discloses genomic DNA sequences (**
sequences (ABL01840-ABL16175) and (ABB57737-ABB72072).
                                                                  The sequence data for this patent did not form specification, but was obtained in electronic
                                                                                                                                                          useful in developmental biology and in elucidating cell signalling cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL16176-ABL30511), expressed DNA
    Sequence
                                                                                                                                                                                                                                                          capable of detecting 1000
                                                                                                                                                                                                                                                                             The invention relates to an isolated nucleic acid detection reagent
                                                                                                                                                                                                                                                                                                                          Disclosure; SEQ ID NO 18072;
                                                                                                                                                                                                                                                                                                                                                                                        New isolated nucleic acid genes from Drosophila and
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                                                                                                                                                                                                                                                                                                                                                                                          detection reagent for detecting for elucidating cell signalling
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Pred. No. 3.2e-47;
                                                                                                                                                                                                                                                                                                                     21pp + Sequence Listing;
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                                                                                                                                                                                    capable of detecting 1000 or more genes from Drosophila. The invention useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryotes for the development of
                                                                              Sequence
                                                                                                                The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from
                                                                                                                                                              insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL16176-ABL30511), expressed DNA
                                                                                                                                                                                                                                                                                                                                                                                                 23-MAR-2000;
11-JUL-2000;
                                                                                                                                                                                                                       The invention relates to an isolated nucleic acid detection reagent
                                                                                                                                                                                                                                               Disclosure;
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                                                                                                    scification, but was obtained in electronic
ftp.wipo.int/pub/published_pct_sequences.
ELVAQAKALGREYVHARLLRAG-LSWSAPER-::: | | | :|: | | | | |: :|
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                                                                                                                                                                                                                                                                                                                                                     PWD,
                                                                                                                                                                                                                                                                               detection reagent for detecting 1000 or more for elucidating cell signalling and cell-cell
                                   17;
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No. 2
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                                            DB 22;
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                                                                                                                                                   proteins
                                                       Length 846;
                                 Indels
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RESULT 10
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at an early stage. It is based on the observation that disease may be caused by mutations in RNA rather than DNA. The invention describes the used of neuronal system RNA molecules, specifically proteins including beta-amyloid precursor protein (beta-APP), the microtubule associated proteins Tau and Big Tau, ubiquitin B, apolipoprotein E, microtubule. associated protein 2 (MAP2), neurofilament-L, neurofilament-M,
                                                                                                      multiple sclerosis, alcoholic liver disease, diabetes mellitus type II and many others listed) or susceptibility to these disorders. The method allows a definitive diagnosis of Alzheimer's disease in living patients,
                                                                                                                                                                          This invention describes a novel method for the diagnosis of a disease caused by, or associated with, an RNA molecule that has a frameshift mutation. The method is used to diagnose age-related diseases, especially cancer and a wide range of neurodegenerative disorders (e.g. Alzheimer's
                                                                                                                                                                                                                                                                                                                     Diagnosing disease by detecting frameshift mutations in RNA corresponding protein mutations - used to diagnose cancer an neurological diseases, particularly Alzheimer's disease, and for treatment and prevention with specific ribozymes or wild
                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           diabetes mellitus type II; microtubule associated protein; Tau; Big Ta ubiquitin B; apolipoprotein E; MAP2; neurofilament-L; neurofilament-M; neurofilament-M; presenilin I; presenilin II; call at tumour antigen; glial fibrillary acidic protein; GFAP; p53; semaphorin III; HUPF-1; bcl-2; B-cell leukemia/lymphoma 2-proto-oncogene; HMGP-C; NSP-A; high mobility group protein-C; neuroendocrine specific protein A.
                                                                                                                                           disease, Down's syndrome, myotonic dystrophy, Huntington's disease, multiple sclerosis, alcoholic liver disease, diabetes mellitus type II
                                                                                                                                                                                                                                                                     Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                              N-PSDB;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   frameshift mutation; age-related disease; neurodegenerative disorde Alzheimer's disease; Down's syndrome; myotonic dystrophy; neuronal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAY21120;
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ROYAL NETHERLANDS ACAD ARTS &
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                                                                                                                                                                                                                                                                   Figure 15;
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horin III; HUPF-1;
HMGP-C; NSP-A;
                                                                                                                                                                                                                                                                                                                      , and also wild-type
                                                                                                                                                                                                                                                                                                                                                           and
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RESULT 1:
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The present sequence is human BCL2 from which a peptide capable of inhibiting BCL2 gene, or gene product, function in cell can be derived. The cDNA sequence encoding the peptide is sense oriented genetic suppressor element (GSE) for reversing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            neurofilament-F, presenilin I, presenilin II, glial fibrillary acidic protein (GFAP), the cellular tumour antigen p53, B-cell leukemia/lymphoma 2 (bel-2) proto-nocogene, semaphorin III, HUFF-1, high mobility group protein-C (HMGP-C) and neuroendocrine specific protein A.
                                                                                                                                                                                                                                                                                                                       WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sense oriented; genetic suppressor element; GSE; reverse; BCL2; gene; mediated; suppression; apoptosis; mammalian; cell inhibition; sensitisation; cancer; chemotherapeutic agent; indrease; treatment; induction; virus; infection; death; increase; treatment; induction; virus; infection; death; disease; haematopoletic; neurological; recombinant construct;
                                                                                                                                      Claim
                                                                                                                                                                                      against
                                                                                                                                                                                                              Sense oriented genetic suppressor element - mediated inhibition of apoptosis, and for se
                                                                                                                                                                                                                                                                                                                                                                       Holzmayer
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DB; AAT33694.
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                                                                                                                                                                                      chemotherapeutic
                                                                                                                                   Pages
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              expression; anticancer; non-Hodgkin's lymphoma;
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19.6%;
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Pred. No. 5.2e-07;
7; Mismatches 60
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The invention relates to an apoptosis inhibitor comprising the amino acid sequence of Bcl-2 protein in which at least one serin residue is substituted by alanine or aspartic acid. The protein increased apoptosis inhibitory activity compared with the wild t Bcl-2 protein. The mutated Bcl-2 protein is useful in the treatm of disorders caused by apoptosis. The present sequence is a muta

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                                                    Sequence
                                                                                                                                                                             Claim 7; Page 33-34; 43pp; Japanese.
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Query Match
Best Local
                                                                                                                               A human bc1-2 gene substantially free of introns is claimed. Also claimed is a substantially pure preparation of a protein having an N-terminal end encoded by the first exon of the human bc1-2 gene wherein said protein is bc1-2-alpha having about 239 (AAP80987) or 205 (AAP80988) AA residues. B-cell neoplasms which are associated with t(14:18) chromosome translocations cause an increase in expression of both the mRNA and the protein prods. of the bc1-2 gene. This is used to detect B-cell neoplasms including follicular lymphomas as well as other lymphomas. Bacterial isolates available as ATCC 67147 and 67148 can be used to express bc1-2 gene products alpha (AAN81292) and beta (AAN91293) resp. in bacteria.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Detection of B-cell neoplasms - by extn. of proteins or RNA from B-cells and specific antibody or DNA probe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 1988-008633/02.
N-PSDB; AAN81292.
                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Claim 12; Fig 2A-2D; 23pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   02-JUL-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B-cell neoplasm; diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence of bcl-2-alpha encoded the 5.5 kb transcript.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17-DEC-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              09-JUL-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13-JAN-1988.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EP252685-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAP80987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAP80987 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (WIST-) WISTAR CORP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AFVELYGPSMRPLFDFSWLSLKTLLS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA
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                                                                                239 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
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15.0%;
19.4%;
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Score 133;
Pred. No. 7
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  DB 9;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       quantitation
                    Length
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                          239;
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17 KYIHYKLSQRGYEWDAGDVGAAPPGAAPAGIFSSQPGHTPHPAASRDPVARTSPLQTPA

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                                                       В
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                                                                                                           Query Match
Best Local Similarity
Matches 40; Conserv
                                                                                                                                                                                                        A DNA construct comprising the bcl-2 coding sequence under control of elements allowing its expression is claimed. Myc-induced cell death can be inhibited in cultured cells by expressing bcl-2. Myc-induced cell death can be de inhibited in tumour cells by admin.
                                                                                                                                                                  Sequence
                                                                                                                                                                                           of bcl-2 antisense oligonucleotides.
                                                                                                                                                                                                                                                                           Disclosure; Page 76-77; 109pp; English.
                                                                                                                                                                                                                                                                                                       Treating tumour cells by de-inhibiting Myc-induced apoptosis esp. by inhibiting expression of the BCL-2 oncogene e.g. with antisense oligo:nucleotide(s), also increasing survival of cultured cells by expressing BCL-2
                                                                                                                                                                                                                                                                                                                                                                                                                     Evan GI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           02-APR-1992;
02-APR-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  02-APR-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14-OCT-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO9320200-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cell death; apoptosis; inhibition; de-inhibition; bcl-2 oncogene; expression; myc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bc1-2 oncogene product
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAR42312;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAR42312 standard; Protein; 239
                                                                                                                                                                                                                                                                                                                                                                              WPI; 1993-336908/42.
N-PSDB; AAQ49815.
                                                                                                                                                                                                                                                                                                                                                                                                                                               (IMCR ) IMPERIAL CANCER RES TECHNOLOGY.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          77 APGAAAGPALSPVPPVVHLALRQAGDDFSRRYRGDFAEMSSQLHLTPFTARGRFATVVEE 136
                             62
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                                                                                 37 EYVHARLLRAGLSW-----SAPERASPAPG-----
77 APGAAAGPALSPVPPVVHLALRQAGDDFSRRYRGDFAEMSSQLHLTPFTARGRFATVVEE 136
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                                                       KYTHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA
                                                                                                                                                                  239 AA;
                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
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92GB-0007276
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                                                                                                                        15.0%;
19.4%;
                                                                                                           26;
                                                                                                                        Score 133; DB 14;
Pred. No. 7.5e-07;
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                                                                                                            Mismatches
                           -----GRLAEVCTV 70
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